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**The Tuskar which strayed in Haridwar township being rescurd back to
Rajaji National Park**

Photo : Rajeew Mehta



The setting Sun at the far end of Fulaichaur
Corbett National Park

Photo A.S. Negi



The misty morning in Ramganga Valley of Corbett National Park

Photo A.S. Negi

Acknowledgements

The special issue of Cheetal to commemorate the 75 glorious years of Corbett National Park, India's first National Park, was conceived at the brain storming session organized by Uttarakhand Forest Department to chalk out the detailed layout of celebrations to be held during its Platinum Jubilee Year (2011). On the initiation of Mr. A.S. Negi, President, Wildlife Preservation Society of India it was agreed by the then Chief Wildlife Warden Dr. S. Chandola to fund the issue. 400 copies of the issue, out of total 1200 printed were purchased by CWLW at a cost of Rs.200/- per copy. It became possible for the Society to send this special issue with 18 colored photographs, 144 pages and a beautiful cover page to our members and subscribers of the articles free of cost. About 320 copies were also sold to people other than the members, WPSI humbly acknowledge the great help rendered by Forest Department Uttarakhand in general and Dr. S. Chandola the then PCCF (WL) and CWLW Uttarakhand in particular for the financial support and guidance in bringing out the special issue. We are thankful to Sri R.K Mishra, IFS, Director Corbett Tiger Reserve for his support and managing the release of the special issue through Honorable Chief Minister of Uttarakhand at a function organized on 8th August 2011 at Ramnagar, to coincide with the date of notification of Corbett National Park in 1936.

A.S. Negi

WPSI thankfully acknowledges the donation of Rs. 20000/- by WWF-India for printing the special Issue of Cheetal to commemorate the Platinum Jubilee of Corbett National Park. We are grateful to WWF-India for their continued support and financial help to the Society without which it may be very difficult to bring out the Society's quarterly journal 'Cheetal' in time.

A.S. Negi

Following donations were received from members and others during the quarter. The Society is highly thankful to the donors.

- 1- Nirojendra Kumar Dutta,
111, Sri Aurbindo Sarani Kolkata W.Bengal – Rs. 1000=00*
- 2. Gorakhanath Behl,
Rajendranagar, Street no. 4 Dehradun – Rs. 500=00*
- 3. Sri Raghubir Singh Rawat,
Pradhan Sukhrao, Kotdwar – Rs.1051=00*

WPSI thankfully acknowledge the efforts of following members and institutions for selling/buying the Platinum Jubilee special Issues of Cheetal.

- 1. Dr. Parshant Singh-14 copies*
- 2. Mr. Jaideep Dutta-104 copies*
- 3. Mr. Yusuf Zahir-54 copies*
- 4. Corbett Foundation-71 copies*
- 5. Uttarakhand Forest Development Corporation – 40 copies
(Patron of the Society)*
- 6. Director Wildlife Institute of India, D.Dun – 10 copies*
- 7. Mr. Rajiv Bhartari IFS
Chief Conservation of forest, Ecotourism Uttarakhand Forest
Department -10 copies*
- 8. Director IGNFA – 5 copies*

Letters to Editor

Dear sir,
greetings,

it was indeed a pleasure to read the special cheetal issue and the articles written on the 75 th anniv. of corbett national park.

the articles written by you, ajt johnson, rishad naoroji and bhagat singh were acceptably good.

am sending a few picture i have taken in corbett, pench and ranthambore during my visits, also pls do inform us about any special plans in the near future and the various activities that are going to take place .

with the best of wishes and success for WLPSI always,

vikram

U.P./17/ life member

KR. VIKRAMJEET SINGH
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Dear Mr. Negi,

I am a Life Member of WPSI and have just received the latest issue of the Cheetal on the occasion of the Olatinum Jubilee of the CNP. It is a collectors' item with so many interesting and useful articles, especially that of Dr. Johnsingh and yourself (on the re-location of Jhirna and other villages). In fact a friend and I saw a tiger at Jhirna in January this year.

I have been going to CNP and the neighbouring Kumaons since about 1986, and there were times when I was the only tourist in the Dhikala complex and could stay 7/8 days at the royal sum of Rs. 40 per day in the Hutments with an extra Rs.100 for a week's fishing on the Ramganga!!

You may or may not have seen my book on Jim Corbett (Penguin, 2005) and about my experiences in CNP (as also in many other WLS since 1968) in my book "Walks in the Wild" (Penguin, 2002, but now out of print).

I am sure that WPSI and Cheetal will continue to flourish under your guidance.

Regards,

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Defensive behaviour of Desert fox (*Vulpes vulpes pusilla*) in the Thar desert

Hemu Chaudhary*(T.R.F.), G. R. Jakher** and L. S. Rajpurohit***

Abstract

In the Thar desert of western Rajasthan desert fox (*Vulpes vulpes pusilla*) is locally known as "Lonki", having slender build with a long bushy tail. Its hair coat colour varies from paler to light-brown or reddish-brown, provides excellent camouflaging for protection from enemies. It is well known for its alertness, intelligence and cunningness. It was found that domestic/feral dogs are main enemies of it as other large carnivores are not found in this area. It was observed that when followed by dog it can easily confuse them by moving its spreading bushy tail very rapidly in zigzag movements. It was also found that it strictly prohibits the area where any dog is present.

Key words: Desert fox, hair-coat, bushy tail, enemies, camouflage, defensive behaviour.

Introduction

Three races of the red fox are recognized from India. A western desert form the white footed fox (*pusilla*) ranging from Rajputana, Cutch and Sindh westwards into South Baluchistan, Persia and Mesopotamia.(Prater, 1980). In western part of Rajasthan it is locally known as "Lonki" having slender build with a long bushy tail. The tip of the tail always bears long white hair (Prakash,1994). The desert fox is an active and alert animal. Though nocturnal but in winter and cloudy season it is active during the day also. It lives in den of a depth 2-3 meters.

Methods

In Dharasar Ka Tala, Barmer district field survey for behavioural studies of the desert fox has been conducted during 2010. With the help of a binocular (7×50mm) the incidence of defensive behaviour in this animal was observed in the month of June, 2010.

Observations

The body colour of desert fox is paler to light or reddish-brown which camouflage with surroundings for their protection. Surprisingly it was found that domestic/feral dogs are main enemies of the foxes (although it also belongs to dog family). Some tribes especially Jogi are main poachers, for this they train their dogs which follow the foxes and also can enter into the den up to some depth for catching it. It was noticed that when followed by the dog, the fox spread its bushy tail perhaps for fearing the dog and move it rapidly in zigzag movements for confusing the dog. Thus the running speed of confusing dog decreases and at that time the fox can reach very easily into the considerable depth of its den.

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Plate- 1 A&B Desert fox (*Vulpes vulpes pusilla*) excellently camouflage with surrounding.

Result and Discussion

The desert foxes are well known for their alertness, intelligence and cunningness. They can easily confuse the predators. A marwari proverb: "Lonki punch mathe ramaave"- meaning that the fox plays the predator on its tail- perfectly fits on its defensive behaviour. The proverb is used for the people who confound others. It was also found that the desert fox strictly prohibits the areas where dogs are available.

Acknowledgement

Authors are thankful to Dr. D. Mohan Head, for the formal facilities, Mr. B. R. Jaipal Assistant Prof. for encouragement, Dept. Of Zoology, J. N. V. University, Jodhpur and Mr. D. R. Jani for helping during field- work.

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1. Prakash, I.(1994a). Mammals of the Thar desert. Scientific Publishers, Jodhpur, India. pp.39.
2. Prater, S. H. (1980). The book of Indian animals. Bombay Nat. History Society, Bombay. pp.128.

An approach for conservation of endangered medicinal plants in alpine and sub alpine areas of Himalaya

G.R. Gargya

Introduction

मुरा माँसी वचः कुष्ठम्, शैलेयम् रजनीद्वयम् ।
सठी चम्पक मुस्ता च सर्वोषधिगणः स्मृतः ॥

(अग्नि पुराण 177/17)

It is said that "Mura (*Erythrina stricta* Roxb.), Mansi (*Nardostachys jatamansi* DC.), Bach (*Acorus calamus* Linn.), Kushtham (*Saussurea lappa* C.B. Clarke), Shaileyam (Shilajeet), Rajani (*Berberis aristata* DC.), Sathi (*Curcuma longa* (Roxb.) Do), Champak (*Michelia champaca* Linn.), and Musta (*Cyperus rotundus* Linn.)" have the superior medicinal properties.

In India, over 2,500 plant species have been identified as medicinal plants, of which the Himalaya is a veritable emporium of a majority of these taxas. Of the 7,000 endemic species of plants found in India, over 3,000 species have been estimated to grow in the Himalayan region (Chatterjee 1980). The medicinal value of some of these plants finds mention in the oldest Hindu scriptures i.e. Rigveda, that is said to be the source of ancient system of medicine, the Ayurveda. "Ayurveda" has its roots in the Himalaya and heavily leans on the pharmaceutical properties of indigenous mountain herbs.

The Alpine

The areas above 3,300 masl characterized by the presence of dwarf bushes or shrubs is known as Alpine zone. In India, alpine pastures occupy about 1.52 % of the total geographical area of the country, and are mainly concentrated in the five Himalayan states of Arunachal Pradesh, Sikkim, Uttarakhand, Himachal Pradesh and Jammu & Kashmir. These zones occupy nearly 33 % of the total geographical area of the Himalaya, of which the vegetated and snow bound areas constitute about 25.88 % and 7.22 % respectively (Anon 1989). These mountainous slopes, meadows, moraines and pasture lands present a spectacular array of flowers during the summer months when the sunny weather stimulates the growth and regeneration of the vegetation. Heavy snow covers the ground for more than six months in a year.

Plants that grow in alpine zone survive in extreme climatic and ecological conditions by adopting strange appearance, interesting modes of perennation and special morphological features. The species native to such cold climates has unique morphological, eco-physiological and bio-chemical mechanism of adaptation and higher resistance to

environmental stress compared to low land species.

These areas have a large number of flowering plants, of which some are of immense economic, medicinal, ethnic, religious, aesthetic and botanical importance. Vegetative growth of plants in this zone generally starts with the commencement of summer, when melting snow supplies abundant moisture to the herbaceous vegetation to run its full course with great rapidity. The vegetation is most prominent in the month of August, but degenerates by the end of September or the beginning of October. The north facing slopes possess luxuriant growth, whereas the south facing slopes show comparatively lower levels of vegetation growth. The floristic components of this zone are almost the same throughout the north - west Himalaya, except for the difference in dominance of various taxa and their associates. The alpine species are mostly perennial in nature and perennate by means of roots, rootstocks, runners, bulbs, bulbils, rhizomes, tubers etc. bearing a few annuals, which perennate through seeds.

Valuable plants

The alpine and sub-alpine areas of north - west Himalaya provides a matchless wealth of highly valuable, medicinal and aromatic plants and is known as a natural reservoir of these herbs. A rich diversity of medicinal and aromatic plants grows wild in the temperate and alpine habitats. These include species like *Gentiana kurroo*, *Picrorrhiza kurroo*, *Berberis aristata*, *Alpinia officinarum*, *Coleus forskohlii*, *Hyoscyamus* sp., *Podophyllum hexandrum*, *Viola serpens*, *Valeriana wallichii*, *Nardostachys jatamansi*, *Thymus serpyllum*, *Aconitum heterophyllum*, *Inula racemosa*, *Swertia chirata*, *Panax pseudoginseng*, *Saussurea lappa*, *Orchis latifolia*, *Bunium persicum* and *Ephedra gerardiana*. Most diversity in medicinal plant species occurs in western Himalaya, generally between 1,800–4,000 m.a.s.l.

Threat status

Owing to high market prices and demand in the national and global markets many of the species such as *Picrorrhiza kurroo*, *Nardostachys jatamansi*, *Orchis latifolia*, *Jurinea macrocephala*, *Allium stracheyi*, *Ephedra gerardiana*, *Podophyllum hexandrum*, *Aconitum heterophyllum*, *Inula racemosa*, *Swertia chirata*, *Rheum emodi*, *Saussurea lappa*, *Angelica glauca* etc. are being extensively extracted from this region. The over exploitation has changed the environmental conditions and original habitats, which has led to the gradual lowering of the population of these important plants resulting in severe threat to their existence and regeneration. Further more, the fact that these wild medicinal plants are collected especially, before the onset of seed setting (through untrained and unskilled labourers), which is often destructive in nature, has also contributed towards their lesser availability in their natural habitats. Besides this natural calamities like landslides have also resulted in the depletion of some of these vital species. Few of these species have already been classified under different categories of threat by BSI (Nayar and Sastry 1987-90) are presented below (Table).

Table: Threat status of medicinal and aromatic plants occurring in the sub-alpine and alpine zones

Botanical Name	Local Name	Status
<i>Aconitum heterophyllum</i> Wall. ex Royle	Atish	Critical
<i>A. balfouri</i> Stapf.	Gobriya	Endangered
<i>A. Chasmanthum</i> Stapf. Ex Holms	Mohri	Endangered
<i>A. falconeri</i> stapf.	Kalmegha	Vulnerable
<i>Acorus calamus</i> Linn.	Bach	Critical
<i>Angelica glauca</i> Edgew.	Chora	Critical
<i>Arnebia benthamii</i> (Wall. ex G. Don) Johnston	Balchhar	Critical
<i>Berberis aristata</i> DC.	Daru haldi	Vulnerable
<i>Berginia ligulata</i> (Wall.) Engl.	Pasanbhed	Vulnerable
<i>B. stracheyi</i> (Hk. f & Th.) Engl.	Pasanbhed	Vulnerable
<i>Carum carvi</i> Linn.	Kala jeera	Vulnerable
<i>Dactylorhiza hatagirea</i> (D. Don) Soo.	Salam panja	Critical
<i>Delphinium denudatum</i> Wall. ex Hk. f & Th.	Nirbishi	Critical
<i>Dioscorea deltoidea</i> Wall. ex Kunth	Genthi	Critical
<i>Ephedra gerardiana</i> Wall. ex Stapf.	Somlata	Vulnerable
<i>Gentiana kurroo</i> Royle	Nilkanthi	Critical
<i>Hedychium spicatum</i> Ham. ex Sm.	Kapoor kachari	Vulnerable
<i>Jurinea dolomiaea</i> Boiss.	Dhoop	Low risk
<i>Nardostachys jatamansi</i> DC.	Jatamansi, Masi	Critical
<i>Picrorrhiza kurroa</i> Royle. ex Benth	Kutki	Endangered
<i>Podophyllym hexandrum</i> Royle	Bankakri	Critical
<i>Rheum emodi</i> Wall. ex Meissn.	Archa	Vulnerable
<i>Saussurea obvallata</i> (DC.) Sch.-Bip.	Brahm Kamal	Endangered
<i>Taxus wallichiana</i> Zucc.	Talispatra	Critical
<i>Thalictrum foliolosum</i> Jones	Pilijari	Vulnerable
<i>Valeriana jatamansi</i> Jones	Muskbala	Critical

Need to conserve

These species, which were earlier reported to be occurring commonly, are now rarely found in the alpine zones of Himalaya. Increasing of market demand and consequently excessive destructive harvesting in their natural habitats are facing threat of extinction. Considering the fact that their natural population has gone down to a critically low level, there is an urgent need to make a concrete plan for *in-situ* conservation of these important medicinal herbs in the nature and to save its genetic pool.

For that it becomes essential to think of alternative sources for the continued availability of the raw material to the practitioners of Ayurveda and other indigenous systems of medicine besides ensuring a sustained supply of quality raw material to the pharmaceutical industry. The only viable option, therefore, is to undertake cultivation of these species in non-forest areas in the region. This would not only reduce the dependence on wild resources but also may ease pressure on the natural habitats and thus help conserve the species *in situ*. Furthermore, cultivation activity would also help generate employment opportunities for the local communities and improve their over all socio-economic conditions and life style.

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- Nayar, M.P. and A.R.K. Sastry (1987-90). Red Data Books, Vol. 1 to 3, Director, BSI, Calcutta.

*Life has no meaning in itself; you have to bring meaning into it.
Life is just raw material; you have to create your meaning out of
it. You have to create your God. God is not there waiting for
you. You have to create it within your heart, within your
innermost core of being. Only then will you be happy.*

O.S.H.O

A Contribution to the Bibliography of South Asian Ornithology: An addenda to *Birds in Books: three hundred years of South Asian ornithology - a bibliography*. By Aasheesh Pittie. 2010. Ranikhet:

(Permanent Black. Price: Rs 795/£ 45.50)

Harkirat Singh Sangh* and Divyabhanusinh**

A researcher in any field realizes very early on that his/her arrival on the chosen field of specialization is not the first such event. In fact, there is no *tabula rasa*. The tablet has already been written on by others, many of whom were giants, and on whose shoulders the researcher must ride. A bibliography of the writings on the subject is a gift from heaven for a researcher who can then proceed to find the little space that may still be available to him on the tablet.

Pittie's work is such a gift. His time line of books from 1713 to 2009 embracing various types of works: "from travelogues, field guides, species monographs, country handbooks, regional avifaunas, multi-volume ornithological works, and folios of art, to simple checklists" is a remarkable display of the wealth of the writings on the subject apart from his diligence in collecting and presenting the vast material.

He has 1715 entries "with appreciable ornithological content" from the South Asian region broadly defined as comprising Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka and Tibet. While we have greatly appreciated this scholarly work we have found 359 more references in addition to those listed by Pittie. In general, works omitted or overlooked by him have been listed. Many of these references may appear at first sight to have no connection with South Asia as a rule. However, only monographs dealing with families represented in India and works containing substantial material on birds of the region are included.

Much of the material for the present paper has been collected from our personal libraries. HSS has also collected substantial information from various rare and antiquarian booksellers' catalogues and data base of rare books on the internet. It has been our intention to add to the work so that this addition to Pittie's work makes it less incomplete.

In the following list most items are annotated with publication details and a summary of their contents. However, it lacks consistency in terms of description about the books because some of them have not been seen by us and an evaluation of such source is not possible. We are keenly aware that this addenda is by no means exhaustive.

AFLALO, F[redrick]. G. (ed.). 1904. *The Sportsman's Book for India*. 1st ed. London: Horace Marshall & Sons. Hbk. (14.5 x 23 cm), pp. i-xii +, 1-216. The work concerns itself with all forms of field sports indulged in by the British in India from big game hunting, pig sticking, hunting with cheetahs etc. There is a chapter (pp. 207-220) on shooting snipe, duck/ teal, geese, partridges, quail, sandgrouse, peafowl, woodcock, pheasants, junglefowl, green pigeons etc. <Ex-libris DS.>

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AFLALO, F[redrick]. G. 1912. *A Book of Wilderness and Jungle*. Hbk.col.pll. illus.by E.Caldwell. <Not seen.>

AHMED, Ashfaq. 1999. *Pheasants of Kumaon*. New Delhi: WWF for Nature Pbk. (17.5 x 22.5 cm), pp. 53, maps. Includes distribution details with maps of Satyr Tragopan, Himalayan Monal, Kalij, Junglefowl, Koklass, Cheer and Blue Peafowl. Appendix includes birdlist (pp.41-46). <Ex-libris Manoj Sharma.>

ALCOCK, A. 1902. *A Naturalist in Indian Seas*. London: John Murray. The contents include a brief account of the breeding of terns on Pitti Island, Lakshadweep. <Not seen.>

ALI, Salim and V.S. Vijayan. 1986. *Keoladeo National Park ecology study*. Summary report. 1980-85. Bombay: Bombay Natural History Society. <Not seen.>

ALI, Zulfiqar. 2009. *Migratory Birds Conservation: Ecology, Distribution and Conservation of Migratory Birds at Uchalli Wetland Complex, Punjab, Pakistan* <Not seen.>

ALI, Zulfiqar and Fehmeeda Bibi. 2009. *Avian Diversity of Jiwani Coastal Wetlands, Pakistan*. Bird Ecology. <Not seen.>

ANGELL, Tony. 1978. *Ravens, Crows, Magpies and Jays*. 1st ed. Seattle: University of Washington Press Hbk., quarto, pp.112, b & w illus. (Revised work was published by T. & A. D. Poyser) <Not seen.>

ANONYMOUS. 1854. *Book of Birds. Pakshi Gyandarshan* (Title in English and Gujarati). 1st ed. Bombay: American Mission Octavo, pp.18, each with a large wood-engraved illustration of a different bird, with explanatory text in Gujarati beneath. The wood-engravings are excellent and the birds depicted include "a mute swan, a cockerel, a parrot, a crow, a cross-bill, a wading bird, a peacock, an ostrich, a prairie chicken, a barn owl, a heron, a cormorant, a white pelican, a stork, a swan, a pigeon, and a cuckoo".

A charming and very rare work from one of the mission presses that flourished from about 1820 onwards <Not seen.>

ANONYMOUS. 1941. *His Highness' [Maharaja Ganga Singh of Bikaner] General Shooting Diary. From 1891/2 to 20th July 1920*. 1941. Vol I. Bikaner: Government Press. Hbk. (27 x 73cm, laminated board), pp. 1-380. Of ornithological interest are: Shooting trip to Sujangarh and Chhappar 1896 (pp. 20); His Excellency Commander-in-Chief and Party's Shoot-Gajner 25th to 28th Nov., 1901 (pp. 93); H. R. H. the Grand Duke of Hesses' Visit from 28th Jan. to 4th Feb., 1903 (pp. 109); Bag while making shooting arrangements connected with His Royal Highness the Prince of Wales Visit 1903 (pp. 153); Tour while making shooting arrangements for his Excellency the Viceroy's Shoot from 19th Sept to 18th Nov 1906 (pp. 171); His Excellency Lord Kitchener's Visit 4th to 7th Dec., 1906 (pp. 173); Shooting arrangements for His Excellency the Viceroy's Visit from 27th Sept. 1980 (pp. 197); His Excellency the Viceroy's private visit from 4th to 18th Nov., 1908 (pp. 199); Visit of Lieut. Governor of Punjab and AGG, 1909 (pp. 213); His Excellency the Viceroy's (Lord Hardinge) Visit 25th Nov to 2nd Dec., 1912 (pp. 259); Arrangements in connection with His Excellency the Viceroy's Visit, 1913 (pp. 272); His Excellency the Viceroy's Visit to Bikaner State from 17th to 25th Oct., 1913 (pp. 274); His Excellency the Viceroy's Visit from 18th to 28th Nov., 1915 (pp. 310); His Excellency the Governor of Bombay's Visit in November, November Shoot and X'Mas Shoot 26th to 28th Dec., 1916 (pp. 325); The Visit of His Excellency the Viceroy and the Secretary of State for India Nov. 1917 (pp. 340); Christmas Shoot, 1919 (pp. 368) <Ex-libris Siddharth Singh Natural History Trust, Jaipur.>

ANONYMOUS. 1941. *His Highness' [Maharaja Ganga Singh of Bikaner] Vol II*. Bikaner: Government. Press. Hbk. (27 x 73 cm, laminated board), pp. 1-414. Of ornithological interest are shooting records of Black-bellied Sandgrouse *Pterocles orientalis* and waterfowl at Gajner and Demoiselle Crane and MacQueen's Bustard shooting at other sites in erstwhile Bikaner State, Rajasthan. <Ex-libris Rajasthan State Archives, Bikaner, Rajasthan.>

ANONYMOUS. 1985. *Proceedings, The Third East-Asian Bird Protection Conference, Tokyo, Japan, 29-31 May 1985*. Tokyo Wild Bird Society of Japan. birds of Bangladesh", (pp. 18-23). <Not seen.>

ANONYMOUS. 1985. *Proceedings of the International Symposium on Bustard, Peshawar, Pakistan*. 4- 6 October, 1983. Pbk. (16.1 x 20.6 cm), pp. i-vii, 1-219, pll. (7 b & w and 11 col.), maps. Each chapter contributed by various authors on Houbara Bustard, Great Indian Bustard, Bengal Florican, the Lesser Florican and the Australian Bustard <Ex-libris HSS.>

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ANONYMOUS. 1990. *Wetlands of India – A Directory*. Government of India. Ministry of Environment & Forests, New Delhi. Pbk. (15.7 x 23.5 cm), pp.1-150. An attempt to put together in one place all information collected on the basis of survey in 1972. Includes detailed information on Kolleru, Pulicat and Dal lakes <Ex-libris HSS.>

ANONYMOUS. c. 1990. *A Pocketbook of Common Birds of Delhi and Haryana*. New Delhi: WWF India Pbk. (8 x 12.4 cm), pp.120, line drawings.<Ex-libris Manoj Sharma.>

ANONYMOUS. 1991. *Pitti Island, Lakshadweep: An Ornithological Study*. Madras: Madras Naturalist's Society <Not seen.>

ANONYMOUS. 1993. *A Checklist of Birds of Punjab*. Mohali: Punjab Government Press Pbk. (21 x 28.4 cm), pp.1-34. Lists only 328 birds <Ex-libris HSS.>

ANONYMOUS. Resources Nepal. 1998. *GIS Database of Protected Areas of Nepal*. Kathmandu: Department of National Parks and Wildlife Conservation, United Nations Development Programme and Resources Nepal.<Not seen.>

ANONYMOUS. 2004. “*Cranes and Community in Gujarat- a holistic conservation strategy for future*”. Gandhinagar: Geer Foundation & Forest Department, Government of Gujarat Pbk. (21.5 x 29.6 cm), pp.1- 67 + . Contents include 10 chapters on cranes in Gujarat and compilation of papers on cranes published in various journals. <Ex-libris HSS.>

ANONYMOUS. 2005. *China Bird Report*. Beijing: China Ornithological Society Of regional interest is paper by Zhang, G. F., Lee, K. C., Chiang, M. L. and Cheng, H. F. “Himalayan Bulbul *Pycnonotus leucogenys*: a species new to China”, (pp. 409-412) <Not seen.>

ANONYMOUS. 2006. *Action Plan for Vulture Conservation in India*. New Delhi: Ministry of Environment and Forests, Government of India. <Not seen.>

ANONYMOUS. 2007. *Lakes and Wetlands of Rajasthan*. Ahmedabad: Centre for Environmental Education. Pbk. (22.3 x 26.6 cm), pp. 1-78, maps, col. photos on every page, maps Useful information about the wetlands but incomplete information about birds. <Ex-libris HSS.>

ARAMATA, Hiroshi. 1989. *Birds of the World. As Painted by 19th - Century Artists*. 1st ed. New York: Crown Publishers Inc Hbk. (22.8 x 29.3 cm, illus. dust-jacket), pp. 1- 239, colour illus. Aramata has chosen 642 prints in this book from his collection of some of the most important ornithology volumes produced towards the end of the 18th century or during the course of the 19th century. More than 80 bird prints in this book have relevance to South Asia and are taken from famous ornithological works: David, abbé Armand et Oustalet, Emile *Les oiseaux dela Chine*. Paris, 1877; Gould, John. *The Birds of Asia*. Completed after author's death by R. Bowdler Sharpe, London, 1850-83; Gray, John Edward *Illustrations of Indian zoology chiefly selected from the collection of Maj.-Gen. Hardwicke*, London, 1830-34; Pennant, Thomas, *Indian Zoology*. London, 1790 and Temminck, Coenraad Jacob et laugier de Chartrouse, Meiffren *Nouveau recueil de planches coloriées d'oiseaux pour servir de suite et de complement aux planches enluminées de Buffon, d'après dessins de Huet et Prête*. Paris <Ex-libris HSS.>

ARLOTT, Norman. 2007. *Collins Field Guide: Birds of the Palearctic- Passerines*. 1st ed. London: Collins Hbk. (13.5 x 20 cm, laminated board), pp. 1-240, pll. 1-80, maps (589, pp.175-233). ISBN 978-0-00-714705-2 This is a field guide to every passerine species found in the Palearctic. The accompanying text concentrates on the specific characteristics and appearance of each species that allow identification in the field. Many of the species covered in the work migrate to South Asia in winter. <Ex-libris HSS.>

BAKER, Edward. 1887. *Sport in Bengal: and How, When and Where to Seek It*. 1st edition. London: Smith Co Hbk., 8vo, pp. xi, 368. Based on the author's forty years' experiences hunting tiger, buffalo, panther, bear, rhinoceros, wild boar and lesser game plus gunning for quail, snipe, partridge and waterfowl. <Not seen.>

BALDWIN, J[ohn] H[enry]. 1877. *The Large and Small Game of Bengal and The North-Western Provinces of India*. 1st ed. London: Henry S. King and Co. Hbk. (18 x 21.7 cm), pp. i-xxiv, 1-380, frontisp. and 22 text illus. Covers both large and small game. Described as 'a classic on Indian sport', it includes numerous hunting vignettes. About one-third (pp.122) of this tome examines sporting bird species <Ex-libris HSS.>

- BANERJEE, Ananda.** 2008. *Common Birds of the Indian Subcontinent-a Field Guide*. 1st ed. Delhi: Rupa & Co. Pbk. (11.5 x 19 cm.), pp. 1-116, with numerous col. illus. Foreward by George Archibald. ISBN-13: 9788129113382 The work includes brief descriptions of c. 200 common birds accompanied by photos. <Ex-libris HSS.>
- BANERJI, Suresh Chandra.** 1980. *Flora and fauna in Sanskrit Literature*. Calcutta: Naya Prokash. Hbk.(13.5 x 22 cm), pp. i- viii, 1-193. The book refers to beasts, fish and aquatic creatures, insects and other small creatures and reptiles from the earliest times in Sanskrit literature. Pp. 161-177 lists bird references. <Ex-libris DS.>
- BEEBE, William.** 1927. *Pheasant Jungles*. 1st ed. New York: G. P. Puttnam's Sons [Pittie (2010) has listed the 2nd ed. published in 1994]. <Not seen.>
- BERRA, Tim M.** 1977. *William Beebe: an annotated bibliography*. 1st ed. Hamden: Archon Books Hbk., octavo, pp. 157. Beebe produced over 800 articles and 24 books. He was primarily a naturalist, but also an ornithologist, ichthyologist, and entomologist, to a lesser extent, who traveled in India and Sri Lanka in search of pheasants <Not seen.>
- BEST, O.B. E. The Hon'ble J[ames]. W.** 1920. *Shikar Notes for Novices with Special Reference to Central Provinces*. 1st ed. Allahabad: The Pioneer Press. Hbk. (12 x 18.5 cm), pp. i-xii, pp. 1-214, sketch maps, one map of Central Provinces It is a "do-it-yourself" introduction to shikar in India primarily with big game. It has two chapters on "small game", pp. 105-131. These are concerned with shotgun shikar of birds. Specially dealt with are peafowl, junglefowl, spurfowl, grey partridge, painted partridge, pin-tail sandgrouse, bustard (MacQueen's), blue rock pigeon, green pigeon, common crane, demoiselle crane, bar-headed goose, wild duck, teal and snipe. <Ex-libris DS.>
- BHANDARI, B. ed.** 1998. *An inventory of Nepal's terai wetlands*. Kathmandu: IUCN-Nepal <Not seen.>
- BHARUCHA, Erach.** 2008. *Wonders of the Indian Wilderness*. 2nd ed., revised. New York: Abbeville Press (originally published in three volumes in 2006 in India by Mapin Publishing) Hbk., large quarto, dust jacket, pp. 856, approximately 2,000 colour photographs. Lavish celebration of the unique natural treasure that belongs to India and a call for future protection. Author describes the plant and animal species of India and the varied ecosystems of the country. The second half of the volume focuses on national parks and wildlife sanctuaries of India, recounting the distinctive ecosystems and species. Reviewed by: Nigel Redman (2009) in *BirdingASIA* 12: 17. <Not seen.>
- BHAT, Harish R. and Pramod Subbarao.** 2006. *Pakshi Prapancha*. 1st ed. Bangalore: Asima Pratishthana. In Kannada Hbk. (14.7 x 22.5 cm, illus. laminated board), pp. 1-310. <Ex-libris HSS.>
- BIRKHEAD, T. R.** 1991. *The Magpies: The Ecology and Behaviour of Black-billed and Yellow-billed Magpies*. 1st ed. London: T. & A.D. Poyser. Hbk., large 8vo, pp. vii, 270, colour frontisp. and black & white illus. by David Quinn. An account of ecology and behaviour of magpies. It covers all aspects of their lives - from marital relationships, food hoarding behaviour, longevity and survival, to nesting behaviour, breeding success, and their controversial relationship with man. <Not seen.>
- BISWAS, Biswamoy.** 1951. *Revisions of Indian Birds*. No.1500. New York: American Museum of Natural History Pbk. (20 x 27.2 cm), pp. 1-12. A taxonomic study based on collections in various museums on *Psittacula cyanocephala* and *Dendrocopos mahrattensis*. <Ex-libris HSS.>
- BOLSTER, R. C.** 1923. *Driven Duck*. 1st ed. Allahabad: The Pioneer Press. Hbk., tall 8vo., pp. viii, 107, portrait frontispiece of the Garganey Teal and 13 b & w illustrations, all from photos by the author, sketch map, appendix with keys on the ducks of India, duck shooting and driving Contains chapters on the following: Methods of Duck Shooting; Duck Driving and Butt Shooting; Object, System and Arrangement; Some Birds Commonly Mistaken for Duck; The Thirteenth Species Dealt With; Appearance; Size; Colouration; Flight; Feeding; Size of Flocks; Notes and Cries; Behaviour under Fire; Notes on Shooting; Hints on Organising Duck Drive <Not seen.>
- BOTA, Gerard, M. B. Morales, S. Mañosa and J. Camprodon (eds.)** 2005. 1st ed. *Ecology and Conservation of Steppe-land Birds*. Barcelona: Lynx Edicions & Centre Tecnològic Forestal de Catalunya. Pbk. (16.2 x 23 cm),

pp. 1-343, b & w photos, maps and graphs. ISBN 84-87334-99-7 ISBN 978-84-87334-99-3 A serious treatise on the biology of steppe and arid habitat birds and the environmental threats they face. The book compiles the invited lectures given at International Symposium on the Ecology and Conservation of Steppe-land Birds, held at Lleida (Spain) between December 3rd and 7th, 2004. Of interest to our area is "Pakistan sources used in Progress, challenges, and perspectives in Houbara Bustard conservation in Asia", pp. 307-325. The chapter covers distribution and migratory status, population trends, factors underlying the population decline, existing efforts for conservation, rehabilitation of confiscated *Chlamydotis macqueenii* by Houbara Foundation International (Rahim Yar Khan, Pakistan), public awareness and perspectives. <Ex-libris HSS.>

BROWN, Leslie. 1959. *The Mystery of Flamingoes*. 1st ed. London: Country Life Hbk. (14.5 x 22.1 cm), pp. 1-116 Author's observations of Greater and Lesser Flamingoes in East Africa. Appendix has "Flamingo Facts and Figures" (pp. 107-112) <Ex-libris HSS.>

BUNN, D. S., A. B Warburton and R. D. S. Wilson. 1982. *The Barn Owl*. 1st ed. Calton: T. & A. D. Poyser Hbk. (16.2 x 24 cm, illus. dust-jacket), pp. 1-264. Frontispiece, line-drawings (col. frontispiece & drawing by Ian Willis), 32 black and white photographs. ISBN 0 85661 032 1 In this classic monograph on *Tyto alba* the results are based on field work in Britain, the U. S. A. and Europe. However, the chapter "Descriptions and adaptations" pp. 17- 44 has information on *T. a. stertens*, *T. longimembris* and Common Bay Owl *Phodilus badius*. <Ex-libris HSS.>

BURKE, W. S. 1920. *The Indian Field Shikar Book*. 5th ed. Calcutta: Thacker Spink & Co. Hbk. (12 x 18cm), pp. i-vi, 1-585 The book describes each species of animal or bird which is an object of shikar. It is essentially a compilation of species information such as scientific and local name, habitat and description. In some cases size or record are given. In chapter "Land Game Birds", pp. 154-202 information about 63 species of birds is given and "Water Game Birds", pp. 202-234 information on 36 species/subspecies of birds is given. <Ex-libris DS.>

CHANDLER, Richard. 2009. *Shorebirds of the Northern Hemisphere*. 1st ed. London: Christopher Helm Pbk. (15.6 x 23.5 cm, illus. cover), pp. 1-448, col. illus. (over 850), distribution maps. ISBN 978-1-4081-0790-4. Contents. Tit. (p. 1), imprint (p. 2), conts (p. 3), Acknowledgements (p. 4), Introd. (pp. 5-7), Plumage and moult (pp. 8-22), Shorebird behavior (pp. 23-34), Introd. to species account (pp. 35-36), Species account (pp. 37-430), Bibliography (pp. 431-445), Index (pp. 446-448). Covers all (134) of the northern hemisphere waders and focuses on specific and subspecific separation. Distribution maps of waders occurring in the Indian subcontinent are not up to date. <Ex-libris HSS.>

CHANDLER, David and Dominic Couzens. 2008. *100 Birds to See before You Die*. 1st ed. London: Carlton Books Ltd Hbk. (19.8 x 25.4 cm, illus. laminated boards, illus. dust-jacket front cover photo: Martin Harvey, front jacket flap photo: Dave Watts, spine: David Middleton, jacket back cover: Tom Vezo, back jacket flap: Dave Watts), pp. 1-221 + 3, 100 col. pll. of birds with distribution maps. Authors have written the work with passion after thorough research. Each entry profiles the bird's natural history and defines the reasons for its inclusion. Bar-headed Goose (pp. 16-17), Siberian Rubythroat (pp. 20-21), Indian Vulture (pp. 32-33), Common Cuckoo (pp. 36-37), Greater Flamingo (pp. 42-43), Ruff (pp. 44-45), White-throated Dipper (pp. 48-49), Greater Hoopoe Lark (pp. 62-63), Pheasant-tailed Jacana (pp. 64-65), Crab Plover (pp. 78-79), Little Forktail (pp. 86-87), Red Crossbill (pp. 90-91), Cutia (pp. 94-95), Hoopoe (pp. 108-109), Snowy Owl (pp. 116-117), Pallas's Sandgrouse (pp. 120-121), Spoon-billed Sandpiper (pp. 136-137), Ibisbill (pp. 142-143), Wallcreeper (pp. 176-177) and Bengal Florican (pp. 180-181) are included in the work. <Ex-libris HSS.>

CHANSINGAUD, Valerie. 2009. *History of Ornithology*. 1st ed. London: New Holland Hbk. (16.2 x 23.2 cm, illus. laminated boards), pp. 1-240, colour illus. Examines development of ornithology from ancient times to the present day. The big names of ornithology in all periods are included with brief biographies and historical vignettes. Of interest to us are chapters, "The British Empire and Ornithology", (pp. 110-119) on the pioneers of ornithology- Thomas Hardwicke, William Henry Sykes, Samuel Richard Tickell, Francis Buchanan-Hamilton, Thomas Claverhill Jerdon, Edward Blyth, Brian Houghton Hodgson and Allan Octavian Hume and "When science became an art, or the golden age of ornithology", (pp. 163-174) has an account on John Gould. Reviewed by: Bryan Bland (2009) in *Birding World* 22: 481-484. <Ex-libris HSS.>

CHAVAN, Sanat, A. c. 2000. *Birds of Shoolpaneshwar Sanctuary and Narmada catchment, Gujarat (India)*.

Published by the author. Pbk. (16 x 21.5cm), pp. 1-65 The work describes the two areas, its avifauna and has a list of birds of the two and their nesting habitats. <Ex-libris DS.>

CHAUDHRY, A. A., A. H. Gill, and Z. Ali. 1997. *Conservation of White-headed Duck in the Salt Range lakes (Uchali Complex), Punjab, Pakistan.* Faisalabad: Punjab Wildlife Research Institute. <Not seen.>

CHOUDHURY, A. U. 1996. *Survey of the White-winged Wood Duck and the Bengal Florican in Tinsukhia district and Adjacent districts of Assam and Arunachal Pradesh.* Guwahati, India: The Rhino Foundation for Nature in North-East India. <Not seen.>

CHOUDHURY, A. U. 2002. *Survey of Mrs Hume's Pheasant in NE India.* Tech. report no. 5. Guwahati: Gibbon Books and the Rhino Foundation for Nature in North-East India. <Not seen.>

CHOUDHURY, A. U. 2002. *Major Inland Wetlands of North-Eastern India.* Coimbatore, India: Salim Ali Centre for Ornithology and Natural History. <Not seen.>

CHOUDHURY, B. C., Jatinder Kaur and K. S. Gopi Sundar . (Compiled and edited). 1999. *Sarus Crane Count- 1999.* Dehradun: Wildlife Institute of India. Pbk., pp.1-23. An off-shoot of Sarus Crane Project. Summarizes results of count organized on 21 June, 1999. <Ex-libris HSS.>

CHRISTENSEN, Glen C. and Wayne H. Bohl. 1964. *A study and review of the Common Indian Sandgrouse and the Imperial Sandgrouse.* Washington: US Deptt. of the Interior: Fish and Wildlife Service. Reprinted from the collection of the University of Michigan Library. Pbk. (12.7 x 20.3cm), pp. 1-71. The work summarises the taxonomy, habitats, food and water, general habits etc. of Indian and Black-bellied Sandgrouse. <Ex-libris HSS.>

CLARK, William S. and Reuven Yosef. 1998. *In-hand identification guide to Palearctic raptors.* Eilat: International Birdwatching Center. Reviewed by: Antero Topp (1999) in *Alula* 5: 74-78. <Not seen.>

COLSTON, Peter and Philip Burton. 1988. *A field guide to the waders of Europe with North Africa and Middle East.* 1st ed. Sydney: Hodder & Stoughton. Hbk. (13.5 x 20 cm illus. laminated board), pp.1-224, pll.(1-23 colour paintings), 100 line drawings, maps. Contents. Half-tit. (p.1), tit. (p. 3), imprint (p. 4), Conts. (p. 5), Foreward (p. 6), Introd. (pp. 7-17), Species account (pp. 19-96 and 145-220), colour pll. (pp. 97-144), distribution maps (pp. 209-218), Index of Spanish names (p.219), Index of French Names (p. 220), Index of German Names (p. 221), Index of English Names (p. 222), Scientific names (p. 223). <Ex-libris HSS.>

CROSBY, M. J. (compiled by). 2003. *Saving Asia's Threatened Birds: A Guide for Government and Civil Society.* BirdLife International. Pbk., large quarto, pp. x, 246, illus. with colour photographs, numerous maps. Major, forest, grassland and wetlands of Asia and globally threatened birds they support are documented. The most important conservation issues in each of these regions are outlined and recommendations are made for actions to address these issues. Reviewed by: Steve Gantlett (2004) in *Birding World* 17: 86-87. <Not seen.>

CROXALL, J. P., P. G. H. Evans and R. W. Schreibereds. 1984. *Status and conservation of the world's seabirds.* Cambridge: U. K. International Council for Bird Preservation (Technical Report No. 2) Paper by Feare, C. J. (pp. 457-471) "Seabird status and conservation in the tropical Indian Ocean" is of regional interest. <Not seen

COUZENS, Dominic. 2008. *Top 100 Birding Sites of the World.* London: New Holland Hbk., quarto, pp. 320, colour photographs, maps. Features detailed accounts of the best birdwatching sites in the world, ranked from one to hundred. An inspirational book to dip into. Reviewed by: Steve Gantlett (2008) in *Birding World* 21: 393-395. <Not seen.>

DANIEL, J. C. (edited by) 1983. *A Century of Natural History.* Bombay: Bombay Natural History Society Hbk. (19 x 25 cm), pp. i-xxii, 1-759 Profusely illustrated with b & w photos and a few col. plates. It has a section on birds (pp. 417-505) with papers by experts from the journal of the society over the years. <Ex-libris DS.>

DAVID, J. H. 1964. *The Forest of Burma.* New York: The New York Botanical Garden. <Not seen.>

DEKKER, René, W. R. J. Richard, A. Fuller, and Gillian C. Baker. 2000. *Megapodes: Status Survey and Conservation Action Plan, 2000-2004.* IUCN <Not seen.>

DHARMAKUMARSINHJI, R. S. 1964. *Birds & Fishes of the Lake Palace (Pichola), Udaipur.* Udaipur, India: Lake Palace Hotels & Motels Pvt. Ltd. Pbk. (9 x 21cm), pp.1-32. A slim volume with basic information and checklist. <Ex-libris DS.>

DIETZMAN, G. and C. Mirande. 1998. *Satellite tracking of a Black-necked crane from Bhutan to Tibet*. Summary report. Baraboo, Wisconsin: International Crane Foundation <Not seen.>

DIKSHIT, Rajendra. Year of publication not mentioned. *Kaua Tantra*. Delhi: Dehati Pustak Bhandar. In Hindi. Pbk. (12 x 18 cm), pp. 1- 112. Several line drawings. Description of the House Crow. Concerned with the use of the bird in tantric rituals. <Ex-libris DS.>

DIKSHIT, Rajendra. Year of publication not mentioned. *Ullu Tantra*. Delhi: Dehati Pustak Bhandar. In Hindi. Pbk. (12 x 18 cm), pp.1- 96. Several line drawings. Description of owls. Concerned with the use of the bird in tantric rituals. <Ex-libris DS.>

DONALD, Paul, F. 2004. *The Skylark*. 1st ed. London: T. & A. D. Poyser. Hbk. (16.5 x 24 cm, illus. dust-jacket illus. by Allan Harris), pp. 1-256, pll. 1-8 (colour photos), numerous line drawings, text figs., tables. ISBN 0-7136-6568-8. Contents. Half-tit. (p.1); ded. (p.2); tit. (p.3); imprint (p.4); Conts. (pp 5-7); List of figs. (pp. 7-10); List of col. pll. (p.11); List of tables (p.12); Acknowledgement (pp. 13-14); Chapter 1 The Larks, distribution, habits and the different genera, structure of the larks, general ecology and behavior, surviving heat and drought (pp. 15- 47); Chapter 2 Distribution and variation (pp. 48-57); Chapter 3 Population and habitats (pp. 58-71); Chapter 4 Song and flight (pp. 72-88); Chapter 5 Mating and territoriality (pp. 89-96); Chapter 6 Nests and egg (pp. 97-112); Chapter 7 Raising the chicks (pp. 113-126); Chapter 8 Productivity (pp. 127-149); Chapter 9 Migration and other movements; Chapter 10 Winter (pp. 150-161); Chapter 11 Survival and mortality (pp. 162-170); Chapter 12 Skylark and modern agriculture (171-201); Chapter 13 Poetry (pp. 202-226); Appendices (pp. 227-233); Biblio. (pp. 234- 248); Index (pp. 249-256). A definitive monograph on skylark with an overview of all the larks of the world. Reviewed by: Oscar van Rootselaar (2004) in *Alula* 10: 156; Steve Gantlett (2004) in *Birding World* 17: 262-263. <Ex-libris HSS.>

DUNCAN, J. R. 2003. *Owls of the World. Their lives, Behaviour and Survival*. Buffalo, New York: Firefly Books. <Not seen.>

ELLISON, Bernard C. 1925. *H. R. H. The Prince of Wales Sport in India*. 1st ed. London: William Heinemann Ltd. Hbk. (19 x 25.4 cm), pp. i- xxx; (i); 1-285, 136 pll., 8 maps, 11 illus. in text. Edited by H. Perry Robinson and an introduction by The Earl of Cromer. Finely written account of the sporting visit made in 1922 by the Prince of Wales (the future King Edward VIII) to India. The Chapter ix, "Small Game Shooting in Udaipur, Bikaner, Bharatpur and elsewhere", (pp.145-168) describes meticulously organized Imperial Sandgrouse and duck shoots in these erstwhile princely states and snipe shooting in Myanmar and Chennai. Also includes detailed list of bags and statistics of these imperial shoots. <Ex-libris DS.>

ELLIOT, Daniel Giraud. 1988. *A Monograph of the Phasianidae*. Imperial folio. Reproductions of the 95 original charcoal sketches and 95 hand coloured plates by Daniel Elliot. The preface is by Eleanor MacLean, Head Librarian of the Blacker Wood Library of McGill University, Montreal, where originals are held. The introduction is by Daniel Lank who examines the history and production of the monograph. The ornithological commentary is abridged from the text of Elliot's work and edited in consultation with the British Museum of Natural History. <Not seen. **ELLOIT, Maj.-Gen. J.G.** 1973. *Field Sports in India 1800-1947*. 1st ed. London: Gentry Books. Hbk. (16 x 25.5 cm), pp.1-223. Black & white photos and illus. ISBN 0 85614 0236. It is survey of the field sports in India almost through out the period of the British in India. Chapter, "The Gun", pp.183-209 deals with snipe, geese and duck in one section and partridge, pheasants and others in the other. As the title suggests it concerns shooting or hunting with a shotgun. <Ex-libris HSS.>

ELLIS, D. H., G. F. Gee, and C. M. Mirande. 1996. *Cranes: their biology, husbandry and conservation*. Baraboo, Wisconsin: National Biological Service / International Crane Foundation. <Not seen.>

ERRITZOE, J. 1993. *The birds of CITES and how to identify them*. Cambridge: Lutterworth Press. Spirally bound, quarto, pp. 201, colour plates, other illustrations. It covers 406 species and is the first guide to the world's endangered birds as listed in the CITES (Convention on International Trade in Endangered Species) appendices. <Not seen.>

ERRITZOE, Johannes, Kaj Kamp, Kevin Winker and Clifford B. Frith. 2007. *The Ornithologist's Dictionary or ornithological and related technical terms for layman and expert*. 1st ed. Barcelona: Lynx Edicions Pbk. (12.2 x 20 cm), pp.1-290, line drawings. A very handy access to more than 5000 words and ornithological terms. <Ex-libris HSS.>

FLETCHER, F. W. F. 1911. *Sport in the Nilgiris and in Wynad*. 1st ed. London: Macmillan and Co. Hbk. (14.5 x 23cm), pp. i-xvii, 1-456. Black & white photos (several). The work is primarily concerned with big game hunting. Chapter xii, pp. 395-405 has section on small game. It describes woodcock, wood snipe, pin-tail snipe, jack snipe and painted snipe shooting. <Ex-libris DS.>

FORSHAW, Joseph, M. 2009. *Trogons: a natural history of the Trogonidae*. 1st ed. Princeton: Princeton University Press. Hbk. (29 x 41.7 cm, illus. dust-jacket by Albert Earl Gilbert), pp. 1-292. This is a definitive natural history of the species and gives important insight into their lives. The text provides the most authoritative and comprehensive information on trogons ever written, and Albert Earl Gilbert's stunning paintings accurately depict all the species in their natural habitats and true colours. Relevant chapters include "Red-headed Trogon" (pp. 79-85), "Malabar Trogon" (pp. 91-94) and "Ward's Trogon" (pp. 104-107). <Ex-libris HSS.>

FORSMAN, Dick. 1999. *The Raptors of Europe and the Middle East. A Handbook of Field Identification*. 1st ed. London: T. & A. D. Poyser. Hbk. (16.2 x 24.2 cm, illus. dust jacket), pp. i-xviii, 1-589, 71 line drawings, 737 col. photos. ISBN 0-85661-098-4. Contents. Half tit. (p.i); tit. (p. iii); imprint (p. iv); Conts. (pp. v-vi); pref. (p. vii); Acknowledgements (pp. ix-x); Abbreviations and Terminology (pp. xi-xvi); How to use the book (pp. xvii-xviii); Introduction to the field identification of raptors (pp. 1-19); Species account (pp. 21-578); Bibliography (pp. 579-587); Species index (pp. 588-589). A comprehensive guide designed to enable birdwatchers to identify raptors. Reviewed by: William S. Clark (1999) in *Journal of Raptor Research* 33:178-179. <Ex-libris HSS.> (Copy inscribed by Dick Forsman).

FREETHEY, R. 1992. *Owls: a guide for ornithologists*. Hildenborough, Kent: Bishopsgate Press <Not seen.>

FROMES, N. F. and H. G. Alexander. 1950. *The Birds of Delhi and District, Reference list*. Bombay: Bombay Natural History Society. Pbk., pp. 66. List of 357 birds. <Not seen.>

FULLER, Richard A., John P. Carroll and J. K. McGowan (eds.) 2000. *Partridges, Quails, Francolins, Guinea fowl, and Turkeys. Status survey and conservation action plan 2000-2004*. Reading, U. K., Gland, Switzerland and Cambridge: World Pheasant Association/BirdLife/ SSC/Partridge, Quail and Francolin Specialist Group. Assesses the conservation status of the species and conservation plan. Pbk. (21 x 28 cm), pp. i-vii, 1-63. <Ex-libris Siddharth Singh Natural History Trust, Jaipur.>

FULLER, R. A. and Peter J. Garson (eds.) 2000. *Pheasants: Status Survey and Conservation Action Plan 2000-2004*. Reading, U. K., Gland, Switzerland and Cambridge: Pheasant Specialist Group and World Pheasant Association. Pbk. (21 x 28 cm), pp. i-vii, 1-68. Assesses the conservation status of the species, their habitats and specifies conservation priorities. <Ex-libris Siddharth Singh Natural History Trust, Jaipur.>

FULLER, R. A. and S. J. Browne (eds.) 2004. *Galliformes: Proceedings of the 3rd International Galliformes Symposium*. Fordinbridge, U. K. World Pheasant Association. A. U. Choudhury's "Distribution, status and conservation of the galliformes in north-east India", (pp. 38-56) is of regional interest. <Not seen.>

GASTON, Anthony J. 2004. *Seabirds: a natural history*. London: Poyser. Hbk., pp. 238, 29 col. photos and scattered b & w, illus. and fig. Reviewed by: Vincent Bretagnolle (2004) in *Birding World* 17: 350-351. <Not seen.>

GEE, E. P. 1961. *Wild Life Sanctuaries in India*. Delhi. Pbk., pp. 96, many col. photos, folding map <Not seen.>

GEERING, Andrew, Lindsay Agnew and Sandra Harding. 2007. *Shorebirds of Australia*. 1st ed. Collingwood, Australia: CSIRO Publishing. Pbk. (17 x 24.8 cm, illus. cover), i-xii, 1-242. col. photos. ISBN 978-0-643092-26-6. The book covers all the waders found in Australia including vagrants. About 36 species regularly occur in South Asia. <Ex-libris HSS.>

GENSEBØL, Benny. 2008. *Birds of Prey*. 4th ed. London: Harper Collins. Hbk. (15.2 x 22.2 cm, illus. laminated boards), pp. 1-416, maps, col. illus. by Bjarne Bertel. ISBN 978 0 00 724814 8. The book covers 49 species of bird of prey found in Europe and includes identification features, flight, biology, distribution, threat, status and population trends. About 36 species regularly occur in South Asia. Reviewed by: Keith Betton (2008) in *Birding World* 21: 394-395. <Ex-libris HSS.>

GHIMIRE, Dev. 2008. *A Birdwatchers's Guide to Kathmandu Valley*. 1st ed. Kathmandu: Bird Conservation Nepal. Pbk., pp. 1-53, maps, photos and tables. Reviewed by: Dave Buckingham (2009) in *Birding ASIA* 12: 14-

17.<Not seen.>

GHORPADE, Malharrao Yashwantrao. 2005. *Winged Friends*. 1st ed. Sandur: Karnataka Seva Sangha. Pbk. (12 x 19 cm), pp. 1-195. Black & white and col. photos . This is a work with brief descriptions of various species. <Ex-libris DS.>

GHOSH, A. K. 1987. *Qualitative Analysis of Faunal Resources of Proposed Namdapha Biosphere Reserve, Arunachal Pradesh*. Calcutta: Zoological Survey of India <Not seen.>

GHOSH, A. K., Q. H. Baqri and I. Prakash (eds.) 1996. *Faunal Diversity in the Thar Desert. Gaps in Research*. Jodhpur: Scientific Publishers.Hbk. (14.5 x 22.5 cm), pp. i-xi, 1- 410.Different aspects of faunal diversity of the Thar Desert are treated. Chapter 32, "Changing Avifauna of the Thar Desert" by Asad Rahmani (pp. 307-324), Chapter 33, "Avian Diversity in the Thar Desert" by B. D. Rana, A. P. Jain and R.S. Tripathi (pp. 325-331) and Chapter, "Birds of Rann of Kutch" by Himmatsinhji (pp. 333-334) are of ornithological interest <Ex-libris HSS.>

GINN, H. B and D. S. Melville. 2000. *Moult in Birds*. BTO Guide 19. Norfolk: British Trust for Ornithology. Pbk. (14.2 x 21.1 cm), pp. 1-112. ISBN 0 903793 02 4. . Primarily dealing with information currently available on moult in birds many of which migrate to South Asia.This is reprinted by Page Brothers, Norwich <Ex-libris HSS.>**GILL, F. B.** 1967. *Observations on the Pelagic Distribution of Seabirds in the Western Indian Ocean*. Washington: Smithsonian Institution.<Not seen.>

GOLE, P. 1990. *The Status and Ecological Requirements of Sarus Crane*. Phase II. Pune: Ecological Society of India. <Not seen.>

GOODWIN, Derek. 1976. *Crows of the World*. 1st ed. Ithaca: Cornell University Press. Hbk., quarto, pp., 354, pll. 3 colour and b & w illus. by Robert Gillmor. <Not seen.>

GOODWIN, Derek. 1977. *Pigeons and Doves of the World*. 2nd ed. Ithaca: Comstock Publishing Associates/Cornell University Press. Hbk., quarto, pp. 363, 6 pll. colour by Robert Gillmor, line drawings, map. <Not seen.>

GORIUP, Paul D. 1986. *Ecology and Conservation of Grassland Birds*. Cambridge: International Council for Bird Conservation.Relevant chapters include "Grassland birds of Indian subcontinent: a review", (pp.187-204) by Asad Rahmani and "Major grassland types of India and their bird communities", (pp. 205-214) by Asad Rahmani and G. K. Brahmachari. <Not seen.>

GOSS-CUSTARD, John D. 1996. *The Oystercatcher. From Individuals to Populations*. 1st ed.Cary, North Carolina: Oxford University Press. Hbk., large octavo, pp. 442, 20 b & w photos, 150 figs. ISBN 10-6198546475. Reviews what is known about the behaviour and population ecology of a popular wader, from a scientific conservation perspective. <Not seen.>**GOTCH, A. F.** 1981. *Birds- Their Latin Names Explained*. 1st ed. Poole, Dorset: Blanford Press. Hbk. (14.5 x 22.1 cm, dust-jacket), pp. 1-348, line drawings. As the title suggests scientific names of 1850 species are translated and explained with reasons. <Ex-libris HSS.>

GOULD, John. 1989. *Monograph of the Pittas*.Facsimile reprint. Folio, pp. 46, pll. 10. Limited edition of 500 copies. Originally published by the author in c.1880. [For additional material see entry no. 668 in Pittie (2010)] <Not seen.>

HAMMOND Gray , Nicholas. *Waders*. 1994.1st ed. Hamlyn. 8vo. pp. 174 col. and black & white illus. <Not seen.>

HARRIS, J.(ed.)1987. *Proceedings 1987 International Crane Workshop, 1-10 May, Qiqihar, Heilongjiang Province, People's Republic of China*. Baraboo, Wisconsin, U.S. A. International Crane Foundation. Khachar, S., Patankar, H. R., Gaekwad, A., Mundkur, T., Parvez, R. and Naik, R. M. "Wintering cranes in Gujarat state, India", (pp. 327-334).<Not seen.>

HICKEY, Joseph J. 1969. *Peregrine Falcon Population: Their Biology and Decline*. Large octavo, pp. xxii, 596, b & w photos, figures, maps.<Not seen.>

HICKS, F[redrick]. C[odrington]. 1910. *Forty Years among the Wild Animals of India from Mysore to the Himalayas*. 1st ed. Allahabad: The Pioneer Press. Hbk. (18.5 x 25 cm), pp. i- vi, 1-607. Prints and several black & white photos. The work is primarily concerned with big game hunting. Chapter xxviii, pp. 385-402, "Small-game Shooting" deals with hunting with dogs, but also deals with grey quail, bush quail, grey

partridge, black partridge, painted partridge, chukor, grey junglefowl, great indian bustard, houbara, black-bellied sandgrouse, pintail sandgrouse, geese, ducks and snipe. <Ex-libris DS.>

HILL, D. A., P. J. Garson and D. Jenkins. 1990. *Pheasants in Asia-1989*. Reading: World Pheasant Association. <Not seen.>

HIRSCHFELD, Eric (ed.). 2008. *Rare Birds Year Book 2008*. Shrewsbury: MagDig Media. Pbk., pp. 276, 400+ col. photos, 189 maps. Reviewed by: Adrian Pitches (2008) in *BirdingASIA* 9 :14-15. <Not seen.>

HOWMAN, K. C. R. and Suresh Singh. 1981. *India's pheasants and their conservation*. <Not seen.>

HOUSTON, David. 2001. *Vultures & Condors*. 1st ed. Grantown-on-Spey, Scotland. World Life Library. Colin Baxter Photography Ltd. Pbk.(23 x 26 cm), pp.1-72, col. Illus. ISBN 1-84107-072-6. The author has explained how vultures and condors have had to acquire adaptations for their specialized way of life and why they are endangered by man's activities. <Ex-libris HSS.>

HIUGHES, Janice M. 2008. *Cranes: a natural history of a bird in crisis*. New York. Firefly Books. Hbk., octavo, pp. 256., colour photographs, maps. The book covers anatomy, feeding habits, mating rituals, habitats, caring for the chicks, migration and seasonal movements. A special section is devoted to cranes in myth and folklore. <Not seen.>

HUTCHINS, Ray. 2007. *Wildfowl of the Northern Hemisphere*. Staffordshire: Merlin Publications. Pbk., pp. 192, colour illustrations, 77 colour maps, 4 mono illustrations. <Not seen.>

INSKIPP, Carol. 1982. *Report on a survey of Bengal Florican Houbaropsis bengalensis in Nepal and India*. <Not seen.>

INSKIPP, C. and Inskipp, T. 1983. *Report on a Survey of Bengal Floricans (Houbaropsis bengalensis) in Nepal and India, 1982*. ICBP Study Report No.2. Cambridge: International Council for Bird Preservation. <Not seen.>

INSKIPP, C. and T. Inskipp. 2003. *Bird Conservation Priorities of the Annapurna Conservation Area*. Report to the UNEP-WCMC/ King Mahendra Trust for Nature Conservation /Annapurna Conservation Area Project. <Not seen.>

ISLAM, Zafar-ul, G. Ugra, A. R. Rahmani and V. Prakash. 2000. *Welcome Winged Visitors to our Refinery*. BNHS/ Indian Oil Corporation Ltd. Hbk. (23.5 x 31.1 cm), pp.1-95. Based on the booklet An Illustrated Guide to the Birds of the Mathura Refinery and illustrations by Carl D'Silva (from The Book of Indian Birds) <Ex-libris HSS.>

JAVED, S., Kaul, R. Khan S. B. 1999. *Status, Distribution and Ecology of Western Tragopan Tragopan melanocephalus in the Western Himalayas*. Aligarh: Department of Wildlife Sciences, Aligarh Muslim University. <Not seen.>

JAIN, Geetika. 2003. *Birds and Animals in Indian Art*. 1st ed. New Delhi: National Book Trust. Pp. 24, col. illus. This book introduces the major traditional art forms of India through the predominant animals and bird motifs in each of them. It also shows the importance of animals and birds in Indian culture and tradition. (For age-group 9-14). Of ornithological interest are "A Peacock in Warli Painting" and "Golden Orioles in Mughal Miniatures". <Not seen.>

JENKINS, D. ed. 1993. *Pheasants in Asia-1992*. Reading, U. K.: World Pheasant Association. <Not seen.>

JENNI, L. and R. Winkler. 1994. *Moult and Aging of European Passerines: A Photo Guide*. Academic Press. ISBN 10: 012384150X. The book covers an up to date summary of the moult strategies and moult sequences of 50 European passerines and discusses the ecological consequences of moult. 480 colour photographs of extended wings show the entire range of moult patterns and of plumage ageing criteria. An appendix gives supplementary information on ageing birds by the degree of pneumatization of the skull. <Not seen.>

JOHNSGARD, Paul A. & Montserrat Carbonell. 1996. *Ruddy Ducks & other Stiff-tails. Their Behavior and Biology*. 1st ed. Norman & London: University of Oklahoma Press. Hbk. (16.5 x 26.1 cm, illus. dust-jacket, on the front cover: photo by the author and on the back: drawing by the author), pp. i-xiv, 1-291, 33 figs. & 16 col. pll. ISBN 0 8061 2799 6. The work is an in-depth over-view of morphology, behaviour and ecology of ruddy and stiff-tail ducks including White-headed Duck *Oxyura leucocephala* (pp. 225-241).

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<Ex-libris HSS.>

JOHNSON, Alan and Frank Cézilly. 2007. *The Greater Flamingo*. 1st ed. London: T. & A.D. Poyser. Hbk. (16.3 x 24.1cm, illus. dust jacket by Cyril Giraard), pp. 1- 328, 25 col. and 61 b & w photos, line drawings, maps. The monograph summarises the available understanding of greater flamingo biology with discussions on population dynamics, ecology, movements, feeding, breeding biology and conservation. Chapter 12 (pp. 229-262) "An inventory of the more important greater flamingo breeding sites" erroneously mentions the breeding at Sambhar Lake, Rajasthan.

Reviewed by: Keith Betton (2008) in *Birding World* 21: 218-219. <Ex-libris HSS.>

KHAN, Akhlaq Ahmad. 1978. *Birdlife of the Daphar and Pakhowal Irrigated Forest Plantation of Punjab*. Punjab Forest Department, Punjab, Pakistan. <Not seen.>

KING, W. B. 1978-1979. *Red Data Book: Aves*. 2nd ed. Morges, Switzerland: International Union for Conservation of Nature and Natural Resources. <Not seen.>

KATZNER, T. and J. Parry-Jones (eds). 2001. *Reports from the Workshop on Gyps vultures, 4th Eurasian Congress on Raptors, Sevilla, Spain, September 2001*. Seville, Spain: Estación Biológica Donana Raptor Research Foundation. Cunningham, A. A., Prakash, V., Ghalsasi, G. R. and Pain, D. "Investigating the cause of catastrophic declines in Asian griffon vultures, *Gyps indicus* and *Gyps bengalensis*", (pp. 10-11); Prakash, V. "Status and distribution of vultures in India with special reference to the population crash in *Gyps* species", (pp. 4-6) and Virani, M., Gilbert, M., Watson, R., Oaks, L., Benson, P., Kham, A. A., Baral, H. S. and Giri, J. B. "Asian vulture crisis project: field results from Pakistan and Nepal for the 2000-2001 field season", (pp. 7-9) are relevant to South Asia. <Not seen.>

KAUL, Rahul. 1999. *Arunachal Pradesh. In Quest of Nature's Bounty*. 1st ed. New Delhi: WWF-India. Pbk. (17.6 x 23.2 cm, illus. cover), pp. 1-76, 5 maps, b & w illus. The work is based on three baseline surveys of flora and fauna of Pakhui, Tawang, Dibang, Namdapha and West Siang conducted during 1991-1995. "Galliformes encountered" (p. 57), "Birds sighted" (pp. 58-67) and "Distribution of birds" (p. 68) are included in Appendices. <Ex-libris HSS.>

KAUL, Rahul, Ashfaq Ahmad and Dhananjay Katju (compiled by). 1996. *Wildlife Studies in North-East India-IV [Mizoram]*. World Pheasant Association, New Delhi and Peter Scott Trust Jamnagar. Includes results of encounter rates of *Galliforme* species and birds found in various study areas. <Not seen.>

KAUL, Rahul, R. H. Raza and R.S. Kalsi. 1994. *Wildlife Studies in North-East India- II Arunachal Pradesh*. A Report. Peter Scott Trust, Jamnagar. <Not seen.>

KAUL, Rahul and A. Ahmed. 1992. *Pheasant Studies in North-East India Arunachal Pradesh*. A Report. Peter Scott Trust, Jamnagar. <Not seen.>

KEAR, Janet and Nicole Duplaix-Hall, editors. 1975. *Flamingos*. 1st ed. Berkhamsted: T. & A. D. Poyser. Hbk. (22 x 24.7 cm, illus. dust-jacket by Ian Willis), pp. 246, col. and b & w photos, line drawings, figures, maps. The book consists of 39 papers read at an International Conference on flamingoes held at the Wildfowl Trust, Slimbridge on 10-12 July, 1973. They form four sections: Populations, Ecology and Conservation; Flamingos in captivity; Ethology and Taxonomy; Flamingo Physiology - in addition there are appendices of biological and other information, a comprehensive bibliography and an introduction by Sir Peter Scott. <Not seen.>

KEULEMANS, Tony and Jan Coldeway. 1982. *Feathers to Brush: the Victorian Bird Artist John Gerard Keulemans 1842-1912*. Epse : Pub. by the authors. Many illustrations. John Gerard Keulemans was renowned artist and lithographer. Several of his works are in bird books of South Asia. <Not seen.>

KHAN, Akhlaq Ahmad. 1978. *Bird Life of the Daphar and Pakhowal Irrigated Forest Plantations of the Punjab*. Punjab Forest Department, Punjab. Pbk., 8vo, pp. 228, folding map and illustrations. <Not seen.>

KHAN, M. A. 1997. *The Sustainable Management of the Avifauna of Tanguar Haor- Final report*. Dhaka: Ministry of Environment and Forest, Government of Bangladesh. <Not seen.>

KHAN, M. A. R. 1987. *The Wildlife of Bangladesh*. Vol II. Birds. Dhaka: Bangla Academy. In Bangla. <Not seen.>

KIPLING, C. I. E, John Lockwood. 1892. *Beast and Man in India: A popular sketch of Indian Animals in their relation with the People*. 1st ed. London: Macmillan & Co. Hbk. (14 x 21cm), pp. i- xii, 1-360.

Several b & w illus. The work concerns human relations with animals. The book's first chapter pp.16-56 titled "Of birds" deals with such relations and interactions of humans with the parakeet, the baya weaver, caged song birds, fighting birds, the hoopoe, the crows, the roller, the maina, the kite, cranes and herons, poultry, goose, the brahminy duck, the peacock, the owl, the pigeon, the koel, the coppersmith and the sparrow. It has a small section on falconry.

<Ex-libris DS.>

KUMAR, S. and P. Singh. 1999. *A study on pheasant distribution in Arunachal Pradesh, Eastern Himalaya, India.* Dehradun: Wildlife Institute of India. <Not seen.>

LAL, Ranjit. 2000. *Mostly Birds, Some Monkeys and a Pest: nature in and around Delhi.* New Delhi: Ravi Dayal. Hbk. (12.5 x 18.5 cm), pp.1-188. ISBN 81-7530-032-9. A compilation of articles written by the author during 1980s and 1990s that appeared in various Indian newspapers. Two articles are of ornithological interest, The Ridge (pp. 89-130) and Sultanpur (pp.131-180). <Ex-libris HSS.>

LANGLEY, Captain E. A. 1860. *A Narrative of a Residence at the Court of Meer Ali Moorad, Wild Sports in the Valley of the Indus.* 2 Vols, The book has a chapter on "Falconry" (pp. 218-233) and "Training Hawks" (pp.124-128). <Not seen.>

LE GRAND, Gérald W. 2001. *Paul Barruel, artiste et naturaliste.* La Chauux-de- Fonds, Switzerland: Musée d'histoire naturelle. In French. Pbk. (20 x 25.6 cm), pp.192, col. pll. A celebration of the life of and work of the French-born illustrator and naturalist, Paul Barruel (1901-1982). Some of his works are in the *Handbook of the Birds of India and Pakistan and The Book of Indian Animals*. Reviewed by: Richard Millington (2001) in *Birding World* 16: 260- 263. <Ex-libris DS.>

LEKAGUL, Boonsong and P. D. Round. 1991. *A Guide to the Birds of Thailand.* Bangkok: Saha Karn Bhaet. Hbk. (14.6 x 22.2 cm, illus. laminated board), pp. + 8, 1-457, col. pll. 135 by Mongkol Wongkalasin & Kamol Komolphalin. Foreward by Ben King. Several bird species described in the work are found in North-East India. <Ex libris HSS.>

LA TOUCHE, J. D. D. 1925. *A Handbook of the Birds of Eastern China.* 2 vols. 1925-34, London: Taylor and Francis. Hbk., pp. xx, 500; xxiii, 566, with a map and 26 pll. 756 forms of birds are described. <Not seen.>

LEWIS, J. C. and H. Masatomi (eds). 1981. *Crane Research Around the World.* "Conservation needs of Black-necked Cranes of Bhutan, Arunachal Pradesh and Ladakh", (pp. 204-211) is written by Khacher, L. <Not seen.>

LIGUORI, Jerry. 2005. *Hawks from Every Angle - How to Identify Raptors in Flight.* 1st ed. Princeton & Oxford: Princeton University Press. Pbk. (19 x 24 cm, illus. laminated board, colour photos, by the author), pp. i-x + i, 1-132, pll. (339 colour, 32 b & w photos). ISBN 0 691 11825 6. Mainly covers the raptors of North America. However, five species (Northern Goshawk, Merlin, Peregrine Falcon, Osprey and Golden Eagle) included in the field guide are relevant to our region. <Ex-libris HSS.>

LOPEZ, A. and Mundkur, T. 1997. *The Asian Waterfowl Census, 1994-1996. Results of the Coordinated Waterbird Census and an Overview of the Status of Wetlands in Asia.* Kuala Lumpur: Wetland International <Not seen.>

MACINTYRE, Maj. Gen. Donald, V. C. 1889. *Hindu-Koh: Wanderings and Wild Sport on and Beyond the Himalayas.* New Delhi: Asian Educational Services. (1993, facsimile rep.) Pp. xx, 464, col. frontispiece, b & w plates & illustrations. Reminiscences of travel and shooting in northern India and the borders of Tibet in the nineteenth- century. Mainly on big game but includes account on goose and sandgrouse shooting. <Not seen.>

MANNERING, Eva (ed.) 1955. *Mr. Gould's Tropical Birds.* 1st ed. London: The Ariel Press. Hbk. decorative boards, pp. 1-16, 24 col. pll. from John Gould's Folios, together with descriptions of the birds taken from his original text. <Not seen.>

MARI, Carlo and Nigel Collar. 2000. *Pink Africa.* 1st ed. London: The Harvill Press. Hbk. (25.5 x 33.5 cm, illus. dust-jacket), pp. 1- 209. ISBN 1 86046 804 7. A fascinating insight into the curiously enchanting world of Lesser and Greater Flamingoes from the alkaline lakes of Kenya and Tanzania. Mostly

photographs with very limited text. <Ex libris HSS.>

MARTENS, J. 1980. *Vocalization, Relationships and Distribution History of the Asian Phylloscopine Warblers*. Berlin: Verlag Paul Parey. <Not seen.>

MATHEWS, W. H. & V. S. Edwards. 1944. *A list of Birds of Darjeeling*. Published by the authors **MAYR, E. and R. A. Paynter (eds.)** 1964. *Checklist of the Birds of the World*. Cambridge, Mass: Museum of Comparative Zoology. <Not seen.>

MIKKOLA, Heimo. 1983. *Owls of Europe*. 1st ed. Calton: T. & A. D. Poyser. Hbk. (16.2 x 24 cm, illus. dust-jacket by Ian Willis), pp. 1-397, 8 col. pll., drawings by Ian Willis, b & w photos, figures, 34 maps. ISBN 085661 034. The book has three parts; part 1, special characteristics-origin, taxonomy, anatomical features, pellets; part 2, species description- the 17 species are described in detail, with voice, behaviour, food, breeding and distribution; part 3, ecological relationships- largely concerned with interactions between owls and with other birds of prey. Relevant to our region are chapters on Barn Owl *Tyto alba*, Striated Scops Owl *Otus brucei*, Eagle Owl *Bubo bubo*, Brown Fish Owl *Ketupa zeylonensis*, Snowy Owl *Nyctea scandiaca*, Little Owl *Athene noctua*, Hume's Owl *Strix butleri*, Long-eared Owl *Asio otus*, Short-eared Owl *Asio flammeus*. <Ex-libris HSS.>

MILLETT, Marcus W. 1914. *Jungle Sport in Ceylon from Elephant to Snipe*. London: Methuen & Co. Hbk. pp. 267+ 31 advts, numerous sketches & photos. <Not seen.>

MILTON, O. and R. D. Estes. 1963. *Burma Wildlife Survey 1959-1960*. Special publication No. 15. New York: American Committee for International Wildlife Protection. <Not seen.>

MOORE, Frederic and Thomas Horsfield. 1854. *A Catalogue of the Birds in the Museum of the Hon. East-India Company*. 1st ed. London: W. H. Allen. 2 vol. Hbk., 8vo, pp. Volume I, xxx, 452. Volume II (published 1856-8): pp., xxx, 453-752. <Not seen.>

MORRIS, Arthur. 1996. *Shorebirds: beautiful beachcombers*. 1st ed. Mechanicsburg, USA: Stackpole Books. Pbk. (15.3 x 23 cm), pp. 1-160. ISBN 0-8117-2619-3. Mainly concerns North American waders with beautifully detailed images taken by one of the premier bird photographers. The species account includes 18 waders that occur in South Asia. <Ex-libris HSS.>

MUKHERJEE, Ajit Kumar. 1966. *Extinct and vanishing Birds and Mammals of India*. 1st ed. Calcutta: Indian Museum. Pbk. (20 x 27cm), pp. 1-39, b & w and col. photos. The work deals with pink-headed duck, white-winged wood duck, mountain quail, great indian bustard, Jerdon's courser. It gives distinguishing characters, distribution, breeding habits and status of these birds, pp. 5-14. <Ex-libris DS.>

MULLARNEY, Killian, Lars Svensson, Dan Zetterström and Peter J. Grant. 2000. *Collins Bird Guide*. London: Harper Collins. Hbk. (14.2 x 20.2 cm, illus. dust jacket by Killian Mullarney), pp. 1-392 + 8 more than 3500 col. illus. ISBN 0002197286. The field guide shows the species in all the major plumages (male, female, immature, in flight, at rest, feeding: whatever is important). The combination of definitive text and superb illustrations, all in a single volume, makes this book the ultimate field guide. Many of the species covered in the book migrate to South Asia. <Ex-libris HSS.>

MUZAFFAR, S. B. 2003. *Assessment of the Feeding Biology, Ecology and Human Consumption of the Migratory Waterfowl of Tanguar Haor, Sylhet, Bangladesh: A Path to Sustainable Management*. Technical report. Hawaii Society of Wetland Scientists. <Not seen.>

NAIR, S. C. 1991. *The Southern Western Ghats- A Biodiversity Conservation Plan*. New Delhi: INTACH <Not seen. >

NAWAZ, R., P. J. Garson and M. Malik. 2001. *Monitoring Pheasant Populations in Montane Forest: Some Lessons Learnt from Pakistan*. Galliformes Project. World Pheasant Association (Pakistan). <Not seen.>

NAIR, P. Thankapau . 1977. *The Peacock. National Bird of India*. 1st ed. Calcutta: KLM Firma Pvt. Ltd. Hbk. (14.5 x 22.1 cm, illus. dust-jacket), pp. i-xv, 1-340, 6 pll. (b & w photos). Contents. Half-tit. (p. i); tit. (p. iii); imprint (p. iv); ded. (p. v); Preface. (pp. vii-viii); Conts. (p. ix); Introd. (pp. xii-xv). Chapters [pp. 1-265] The Peacock- the National Bird; Etymology of (1) *Mayil* 19 and (2) *Mayura* 23; Origin of the first Peacock; Grand Mughal of the Bird Kingdom; How did the Peacock get the Hundred-eye designs?; Peacock Flesh- a Table Delicacy; The Peacock's place in Indian Folklore; The Peacock in Sanskrit Literature; The Peacock in

Numismatics; The Peacock's Place in History; The Peacock Throne; Peacock Worship in India; Appendix; Peacock Worship in Persia, China and other Lands; India's Cultural Ambassador; Conclusion]; Biblio. (pp. 266-279); Index to Authors (pp. 280-291); Index (pp. 292-338); Addenda et Corrigenda (pp. 339-340). The subject matter has been comprehensively treated by the author. Not only is Peacock's place in Indian folklore and art discussed in detail all available literature is cited in support of his contention that the Peacock is not merely a bird to the people of India, but it has all along been the symbol of Indian culture. <Ex-libris HSS.>

NARAYAN, Gautam and Lima Rosalind. 1990. *Status and ecology of the Lesser and Bengal Floricans, with Reports on Jerdon's Courser and Mountain Quail: final report.* Bombay: Bombay Natural History Society. <Not seen.>

NETHERSOLE-THOMPSON, Desmond. 1973. *The Dotterel*. 1st ed. London: Collins. Hbk., octavo, pp. 288, 8 photos in black and white and 14 text figures, tables, appendices. <Not seen.>

NETHERSOLE- THOMPSON, Desmond and Maimie Nethersole-Thompson. 1979. *Greenshanks.* Berkhamsted: T. & A. D. Poyser. Hbk. (16.2 x 24 cm), pp., 275, 11 colour pl. illus. by Donald Watson, b & w photos, figs. Tables (pp. 223-248) ISBN 0 85661 022 4.

Contents. Half-tit. (p. 1); Books by Desmond Nethersole-Thompson (p.2); tit. (p.3); imprint (p.4); ded. (p.5); conts. (p.7); Tables (pp. 8-9) Appendices (p.9); pl. (colour and monochrome p.10); list of figs. (pp.11-12); Preface (pp. 13-16, by David Parmelee); Author's Preface (pp. 17-18); Acknowledgements (pp.19-22); Chapter one, Greenshank (pp.23-25); Chapter two, The Family (pp. 26-33); Chapter three, Greenshank Country (pp. 34-41); Chapter four, Nest Hunting (42-50); Chapter five, Individual Greenshanks (pp. 51-63); Chapter six, Groups, Populations and Density (pp.54-66); Chapter seven, Voice (pp. 67-99); Chapter eight, Territory and Dispersion (pp.100-111); Chapter nine, Courtship and Displays (pp. 112-123); Chapter ten, Nest (pp. 124-131); Chapter eleven, Egg, Clutch and Laying Season (pp. 132-145); chapter twelve, Brooding and Hatching (pp. 146-156); Chapter thirteen, Young (pp. 157-164); Chapter fourteen, Feeding Habitats, Feeding Behaviour and Food (pp. 165-177); Chapter fifteen, Predators (pp. 178-184); Chapter sixteen, The Breeding Habitat of the Greenshank in Scotland (pp. 185-192); Chapter seventeen, Distribution, Numbers and Movements (pp. 193-208); Chapter nineteen, Progress (pp. 209-215); Selected biblio. (pp.216-222); Appendix (pp. 249-265); Index (pp. 267-275). There are few long-term studies on waders to equal this one. It is revised and enlarged version of the classic *The Greenshanks*, published in 1951 by the authors. <Ex-libris HSS.>

O'BRIEN, Michael, Richard Crossley and Kevin Karlson. 2006. *The Shorebird Guide.* 1st ed. Boston and New York: Houghton Mifflin Company Pbk. (16 x 23.5 cm, illus. dust jacket), pp. i-xiv, 1-477, more than 870 col. photos. ISBN 13-978-0-618-43294-3 ISBN 10-0-618-43294-9 Birding by impression: an all-new, holistic approach to identifying shorebirds is emphasized; to use the most easily observed characteristics - size, structure, behavior, and general color patterns - to identify birds even before looking carefully. **OGILVIE, M and C. Ogilvie.** 1986. *Flamingos.* 1st ed. Gloucester: Allan Sutton. Hbk. (14.5 x 22.1 cm, illus. dust-jacket), pp. 5+ 1-121, 8 col. pl. The work comprehensively deals with this group of highly attractive birds and gives known facts about the world's six different kinds of flamingoes. <Ex-libris HSS.> Covers 236 species and sub-species with detailed field descriptions, details of habit and range. A unique and fully comprehensive collection of stunning photographs and descriptions of all the world's ducks, geese and swans accompanied by full details of age and sex. Every significant plumage variation is shown, where possible or appropriate, for each species. Reviewed by: Pekka J. Nikander (1998) in *Alula* 4: 154-156. <Not seen.>

ONLEY, Derek and Paul Scofield. 2007. *Albatro* A comprehensive guide to the pelagic birds: albatrosses, petrels, shearwaters, storm petrels and diving petrels with close-up of diagnostic regions of the plumage and birds in flight. <Not seen.> Hbk. (15.5 x 22.1 cm, illus. dust-jacket), pp. i-xvi, 1-238 + 1, frontis. pl. 1-3 (colour), 1 pl. (b&w. photo), line drawings numerous, 1 map. Contents; Half-tit. (p.i), tit. (p.iii), Editor's introduction with historical and ornithological notes (pp. v-xxii); author's preface (xxiii-xxvi), Gulab chashim: the yellow-eyed division (an account of different raptors used in falconry pp. 1- 170); Practical and historical (care and treatment, notes on bells, foundation and growth of falconry in Afghanistan, notes on Afghan attire, epilogue pp. 173- 203); Appendices (ingredients used in raptor medicine, game birds and prey species found in

Holarctic Waders. BTO Guide 17. Tring: British Trust for Ornithology Pbk. (14.3 x 21 cm), pp. 1- 168. Provides methods of ageing, sexing and identification of waders. Moults studies and biometric data are also included. <Ex-libris HSS.>

PHILLOT, Lt. Col. Douglas Craven. c. 2002 (year of publication not mentioned). 1st ed. *Observations on Eastern falconry: A Collection of Articles by Lt. Col. Phillot published in 1906-1910 in the Journal and Proceedings of the Asiatic Society of Bengal*. Hbk. (17 x 26 cm), pp. i- x, 1-214, endpapers with images of falconers, frontispiece, 2 black and white photos, several line drawings. This is a collection 29 papers which deal with notes on Falconidae, equipment for falconry. Ten papers deal with miscellaneous issues including hunting with cheetahs, dogs and vocabulary of technical terms in Urdu, Persian and Arabic concerned with falconry. <Ex-libris DS.>

POOLE, Alan F. 1989. *Ospreys: A Natural and Unnatural History*. Cambridge: University Press. Hbk., small quarto, pp. xviii, 246, b & w photographs, figures, tables. This work looks at the natural history of a bird that has become the major symbol of international bird conservation. <Not seen.>

PORTER, R. F., Ian Wills, Stein Christensen Bent Pors Nielsen. 1974, 1981. *Flight identification of European Raptors*. 3rd ed. Calton: T. & A. D. Poyser Hbk. (16 x 25.5 cm), pp. 1-180. Black and white photos & drawings, covers many migrant birds of prey to India from Europe. <Ex-libris HSS.>

RADCLIFF, Lt. Col. E. Delme. 1871. *Falconry. Notes on the Falconidae used in India in Falconry* (revised and reprinted by the Standfast Press, Framton-on-Severn, Gloucestershire in 1971). Hbk. (11 x 16.5 cm), pp. 1-38. The title of the book indicates its contents. <Ex-libris DS.>

RAHMANI, Asad, R. and Ranjit Manakadan. 1988. *Bustard Sanctuaries of India. Strategies for their conservation and management*. Technical report no. 13. Bombay: Bombay Natural History Society. Pbk. (22 x 28 cm), pp. 1-40, b & w photos, maps. The work is based on six years of research at three field stations-Nanaj, Karera and Rollapadu, and on the various surveys. <Ex-libris HSS.>

RAHMANI, Asad, R. 1994. *Status and Distribution of White-browed Bushchat Saxicola macrorhyncha in India*. Aligarh: Centre of Wildlife and Ornithology. Pbk. (21.5 x 27.7 cm), pp. 1-17, tables showing historical and recent records and map. The results of a survey by the author to determine the status and distribution of the endangered species. <Ex-libris HSS.>

RAHMANI, A. R. 1997. *Wildlife in the Thar*. 1st ed. New Delhi: WWF for Nature - India. Pbk. (17.8 x 24.2 cm, illus. cover), pp. i-xi, 1-100, illus. maps (pp. 2, 7, 26, 28, 36, 37, 88). Contents. Tit. (p.i); half-tit. (p.ii); imprint ; ded. (p. iii); About WWF-India (p.iv); Foreword (p. v, by Samar Singh); Pref. (p. vii, by author); Acknowledgement (pp.ix-x); Conts. (p. xi); Chapter I: Introd. (pp. 1-8); ChapterII: Wildlife in Protected Area (pp. 9-22); Chapter III: Indira Gandhi Nahar Project (pp. 23-30); Chapter IV; large mammals (pp. 31-48) ; chapter V: Birdlife (pp.49-79); Chapter VI: Status of Endangered Birds (pp. 80-90); Chapter VII: Environmental Problems(pp. 91-95); Chapter VIII: Recommendations (pp. 96-97); ChapterIX: References (pp. 98-100). The work highlights the faunal diversity of Thar Desert and examines the ecological impact of the Rajasthan Canal (Indira Gandhi Nahar Pariyogna) on the desert wildlife. The main body of the book is on birds and briefly covers the history of "Ornithology in the Thar Desert", "Checklist of the birds of the protected areas in the Thar desert", "Birds seen in Thar Desert", "Status of Endangered Birds" (Great Indian Bustard, MacQueen's Bustard and White-browed Bushchat). <Ex-libris HSS.>

RAHMANI, Asad, R. 1998. *Status Survey of the Houbara Bustard in the Thar Desert of India*. (Team members - Harkirat Sangha, Manoj Kulshreshtha, Satish Kumar, M. Zafar-ul-Islam and Mehboob Alam). Mumbai: Bombay Natural History Society. Pbk. (21.4 x 29.7 cm), pp. 1-37, tables and 12 col pll. The title indicates the contents. <Ex-libris HSS.>

RAHMANI, Asad, R. 2001. *Status of the Bengal Florican Houbaropsis bengalensis in Uttar Pradesh, India*. Bombay: Bombay Natural History Society. <Not seen.>

RAMESH, K., S.Sathyakumar and G. S. Rawat. 2001. *Radio Tracking of Western Tragopan in Great Himalayan National Park*. Final Report: a collaborative work of Wildlife Institute of India and World Pheasant Association, U.K. <Not seen.>

RAOL, Lalsinh Mansinh. 1991. *Panina Sangathi*. [Water Birds] Ahmedabad: Centre for Environment

or near Afghanistan, Anglo-Pushtoo glossary pp. 205-238).

A sequel to author's *Falconry in the Land of the Sun* who places his birds of prey in Yellow-eyed category, according to the standard divisions that exist in the East. It is a first-hand account of raptors breeding and wintering in Afghanistan. Many aspects of falconry including treatment and prevention of disease are covered. <Ex-libris HSS.> In a limited ed. of 675 hbk. and 310 pbk. copies. The copy held by HSS is no. ii of x, author's copies.

OWEN, M. and Black, J. M. 1990. *Waterfowl Ecology*. Glasgow and London: Blackie. <Not seen.>

PANDEY, C. N. 2004. *Gujarat's Wild Destinations*. Gandhinagar: Gujarat Ecological Foundation and Research (GEER). Pbk. (20 x 26.5 cm), pp. i-x, 1-84, col. photos. Section on "Wings of Nature", (pp. 4-6) has col. photos of birds found in Gujarat. There is information on avifauna found in Khijadia Birds sanctuary (p.29), Porbandar Bird Sanctuary (p. 37), Kachch Great Indian Bird Sanctuary (p. 46), Thol Lake Bird Sanctuary (pp. 57-58) and Nalsrovar Bird Sanctuary (pp. 66-68). <Ex-libris DS.>

PANDEY, C. N. and Jethva. 2005. *Vultures ! Status of Vultures in Gujarat state*. Gandhinagar: Gujarat. The title indicates the contents of the book. <Ex-libris DS.>

PANGLEY, Y. P. S. and S. C. Joshi (eds.) 1987. *Western Himalaya: Environment, Problems and Development*, 2. Nainital: Gyanodaya Prakashan. "Conservation of Himalayan Pheasants in Kumaun", (pp. 684-691) by Young, L. and Kaul, R. has ornithological content. <Not seen.>

PANOV, E. N. 2005. *Wheatears of Palearctic. Ecology, Behaviour and Evolution of the Genus Oenanthe*. 1st ed. Sofia: Pensoft Serus Faunistica No 40. Hbk. (17 x 24.2 cm, illustrated cover, no dust jacket), pp. 1-439, col. photos.

This book by an acknowledged expert is unique in its detailed treatment of the 14 Palearctic species. It presents a wealth of information, largely derived from studies in Russia and other parts of the former Soviet Union on a variety of subjects: taxonomic questions; flamboyant displays and highly varied, sometimes mimetic, songs; the construction of stone platforms at the nest; the striking polymorphism of the Eastern Pied (or Variable) species. Reviewed by: Oscar van Rootselaar (2005) in *Birding World* 18: 305-307. <Ex-libris HSS.>

PAULSON, Dennis. 2005. *Shorebirds of North America. The Photographic Guide*. London: Christopher Helm. Pbk. (14 x 21.6 cm, illus. cover), pp.1-361, more than 530 col. photos. ISBN 0-7136-7377-X. The beautifully illustrated work represents the first complete guide to North and Central American shorebirds ever published. Includes at least 50 waders which have been recorded in South Asia, including that are vagrants. Reviewed by: Antero Topp (2005) in *Alula* 11: 84; Richard Millington (2005) in *Birding World* 18: 175. <Ex-libris HSS.> **PAWAR, Samraat and Aysegul Birand.** 2001. *A Survey of Amphibians, Reptiles and Birds in Northeast India*. Mysore: Centre for Ecological Research and Conservation. <Not seen.>

PEMBERTON, John, H.(ed.). 1997. *Who's Who in Ornithology*. 1st ed. Buchanan Press. Hbk. (16.2 x 24.2 cm), pp.1- 416. A portrait of over 1000 people who are actively involved in all aspects of British ornithology, many of whom have also influenced ornithology of South Asia in recent decades. Includes Alström, Per (p. 21), Dickinson, Edward (pp. 106-107), Grimmett, Richard (pp. 158-159), Madge, Steven (pp. 232-233), Mounfort, Guy (p. 260), Redman, Nigel (pp. 306-307), Roberts, Thomas Jones (p. 315) and Woodcock, Martin (p. 412). <Ex-libris HSS.>

PENSHURST, K.G., Lord Hardinge of. 1933. *On Hill and Plain*. 1st ed. London: John Murray. Hbk. (13 x 20.5 cm), pp. i- xii, 1-110, several black & white photos. The work is primarily concerned with big game shikar of the Viceroy and Governor-General of India. One chapter titled "Duck shooting in Bharatpore", (pp. 37-44) describes the Viceroy's shoots in 1912, 1914 and 1915. <Ex-libris DS.>

PERRINS, Christopher (ed.) 2003. 1st edition. *Firefly Encyclopedia of Birds*. New York: Firefly Books. (Revised ed. 2009, Oxford) Hbk. (23.5 x 29.7 cm), pp.1- 656, colour photos, maps. The definitive single-volume guide to the birds of the world. It covers the behaviour, diet, distribution and evolution of every known living bird of the world, and is illustrated throughout with stunning color photographs and original artwork. <Ex-libris HSS.>

PRATER, Tony, John Marchant and Juhani Vuorinen. 1977. *Guide to the Identification and Ageing of*

Cheetal, Vol. 49, No.4

Education. In Gujarati. Pbk. (11x17.5cm), pp.1- 276, several line drawings and 8 col. pll. Describes 143 species of the wetlands and some birds of prey. <Ex-libris DS.>

RAOL, Lalsinh Mansinh. 2001. *Aspasna Pankhi* [Birds of the Surroundin Describes 94 common species of. <Ex-libris DS.>

RAOL, Lalsinh Mansinh. Year of publication not mentioned. *Vid, Vagdana Pankhi.* [Birds of the grass lands] 1st ed. Ahmedabad: Centre for Environment Education. In Gujarati. Pbk. (11x17.5cm), pp. 1-234. Several line drawings and 8 col. pll. Describes 134 species of birds found in the grasslands and scrub forest including birds of prey and other species. <Ex-libris DS.>

RAOL, Lalsinh Mansinh. 1998. *Van upvanna pankhi* [Birds of forest and garden] 1st ed. Ahmedabad: Centre for Environment Education (In Gujarati). Pbk. (11 x 17.5 cm), pp.1-141. Describes 92 species of birds found in forests and gardens. <Ex-libris DS.>

ROBSON, Craig. 2000. *A Field Guide to the Birds of Thailand and South-East Asia.* Bangkok: Asia Books. Hbk. (16 x 24.1 cm), pp. 504, 104 col. pll. <Not seen.>

ROSAIR, D. and D. Cottridge. 1995. *Photographic Guide to the Waders of the World.* London: Hamlyn. Hbk. (22.3 x 28 cm), pp.1-175, 700 col. photos. This volume contains detailed field descriptions of size, plumage, habitats, behavior, calls, movements and range of the world's 212 species of waders. <Ex-libris HSS.>

ROY, Dennis. 2008. *A Life of Ospreys.* 1st ed. Dunbeath: Whittles Publishing. Pbk., octavo, pp.224, col. photos. ISBN 13- 9781904445265, 1904445268 Roy Dennis is synonymous with the successful return of the osprey to Scotland. The book also covers the ecology of the osprey with many personal anecdotes and insights. <Not seen.>

RUSSEL, C[harles]. E[dward]. M[ackintosh]. 1900. *Bullet and Shot in Indian Forest, Plain and Hill.* 1st ed. London: W. Thacker and Co. Hbk.(14.5 x 22.5cm), pp. i-xii, 1-542. Frontispiece. The work is primarily concerned with trophy hunting of large game. Chapter XII, "Indian Snipe Shooting", (pp. 363-380) and chapter XIII, "Brief Notes on Some of the Game Birds and Wildfowl of India", (pp. 389-399) contain matter of ornithological interest. <Ex-libris DS.>

SAMANT, J. S., V. Prakash and R. Naoroji. 1995. *Ecology and Behaviour of Resident Raptors with Special Refrence to to Endangered Species.* Final report (1990-93) Bombay: Bombay Natural History Society. <Not seen.>

SANKARAN, Ravi. 1995. *The Nicobar Megapode and other Endemic Avifauna of the Nicobar Islands. Status and Conservation.* Sacon –Technical Report 2. Coimbatore, India: Salim Ali Centre for Ornithology and Natural History. Pbk. (20 x 28.5 cm), pp. i-iv, 1-44, tables & fgures. The results of a study carried out to determine the status and habitat conditions of Nicobar Megapode (*Scrubfowl*) *Megapodius nicobariensis* and other endemics. <Ex-libris HSS.>

SANKARAN, Ravi. 1995. *Impact assessment of nest collection on the Edible-nest Swiftlet in the Nicobar Islands.* Sacon Occasional Report 1. , Coimbatore: Salim Ali Centre for Ornithology and Natural History. Pbk. (17 x 24.2 cm), pp. i-iii, 1-26, figures & tables. <Ex-libris HSS.>

SANKARAN, Ravi (compiled by). 1996. *Conservation of the Lesser Florican.* Coimbatore: Salim Ali Centre for Ornithology and Natural History. Pbk. (21 x 28 cm), pp. 1-32, figures and tables. Background paper for the workshop on Lesser Florican held on 28 July, 1996 at Kota, Rajasthan. <Ex-libris HSS.>

SANKARAN, Ravi and A.R. Rahmani. 1986. *Study of ecology of certain species of wildlife and their habitats: the Lesser Florican.* Annual Report 2, 1985-86. Bombay: Bombay Natural History Society. <Not seen.>

SANTELLA, Chris. 2007. *Fifty Places to go Birding Before you die: Birding Experts Share the World's greatest Destinations.* 1st ed. New York: Stewart, Tabori & Chang. Hbk. (18.7 x 21 cm), pp. 1-221, more than 40 col. photos. ISBN 978-1-58479-629-9. The author presents some of the greatest birdwatching places in the world through interviews with prominent birders. Two birding spots are recommended from the Indian Subcontinent. Chapter on Bhutan, (pp. 43-47) is written by David Bishop and on the Andamans, (pp.111-113) by Pamela C. Rasmussen. <Ex-libris HSS.>

SASTRI, M.M. Harprasad (ed.). 1982. *Syainika Sastram: The Art of Hunting in Ancient India of Raja*

Rudradeva of Kumaon. Delhi: Eastern Book Linkers Hbk. (14 x 20.5 cm), pp.1-173. The king was a contemporary of Emperor Akbar. The work is a treatise on on falconry. <Ex-libris DS.>

SAXENA, V. S. 1975. *A Study of Flora and Fauna of Bharatpur Bird Sanctuary*. 1st ed. Department of Tourism, Government of Rajasthan. Hbk. (16 x 23 cm), pp. vii, 1-108, map of the sanctuary. Provides brief overview of the park and its management, record of duck shoots, lists common plants, numbered trees, gives main breeding season of mammals etc. It has an index of English names with local name equivalents of birds found with 322 entries along with breeding birds, migratory birds and birds ringed in the sanctuary. <Ex-libris DS.>

SCOTT, Peter. 1972. 1st ed. *The Swans*. 4to, pp. 1-242, col. frontispiece, illus. and b & w photos. <Not seen.>

SCOTT, Derick. 1997. *The Long-eared Owl*. 1st ed. London: **The Hawk and Owl Trust** 8vo. pp.xvi,128, with illustrations from photographs, nearly all in colour, and from drawings.<Not seen.>

SEN, A. K. Year of pub. not mentioned. *Biodiversity of Mouling National Park*. Vol -1. Department of Environment and Forests, Govt. of Arunachal Pradesh. Pp.12, includes a checklist of birds. <Not seen.>

SESADRI, B. 1995. *Call of the Wild. Survival in the Sun* (Indian Wildlife and Wildlife Reserves). 2nd revised ed. Delhi. <Not seen.>

SHARMA, B. D. 1994. *High Altitude Wildlife of India*. 1st ed. New Delhi: Oxford and IBH Publishing. Pbk. (14 x 21 cm, illus. cover), pp. i-xv, 1-291. pll. (56 col. illus. and photos and 30 b & w photos). Foreward by George Schaller. Part III: Chapter 7 includes "High Altitude Birds", "Altitudinal Migration" and "Systematic Account of Avifauna" (pp. 143-202). Appendix includes "Checklist of Birds". <Ex-libris HSS.>

SHARMA, Manoj, Bill Harvey, Nikhil Devasar and Bikram Grewal (compiled by) 2003. *Birds of the Corbett Tiger Reserve*. Field Director, Corbett Tiger Reserve, Ramnagar (Dist. Nainital), Uttaranchal. Pbk. (12 x 17.1 cm), pp. 24. <Ex-libris Manoj Sharma.>

SHAFIQ, Tehmina, Salim Javed and Rahul Kaul. 1998. *In the quest of the Himalayan Quail* .1st ed. New Delhi: World Wide Fund for Nature-India with the distribution, evolutionary relationships, morphology, habitat and habits, behaviour and migration of possibly extinct Himalayan Quail <Ex-libris HSS.>

SHRUBB, Michael. 2007. *The Lapwing*. 1st ed. London: T. & A. D. Poyser/A. C. Black. Hbk., 8vo, pp. 232, 8 pages of col. photos, illustrations by Robert Gillmor. Fact-filled review of Lapwing *Vanellus vanellus* biology

SIMMS, Eric. 1992. *British Larks, Pipits and Wagtails*. 1st ed. London: Harper Collins Publishers. ISBN 0 00219870 3. Pbk. (15 x 21.5 cm), pp. 1-320, 4 col. pll. and over 200 b & w photos and drawings. Chapter 6 "Rarer Larks of the British Isles" (pp. 78-101) includes Bimaculated, Short-toed, Lesser Short-toed and Crested Lark, chapter 8 is on "The Tree Pipit" (pp.120-134), chapter 11 on "The Water Pipit" (166-175), chapter 12 "The Rarer Pipits of the British Isles" includes Tawny, Red-throated and Olive-backed Pipit, chapter 13 "The Yellow Wagtail" (pp. 198-211), chapter 14 "The Citrine Wagtail" (pp. 212-216), chapter 15 "The Grey Wagtail" (pp. 217-232), chapter 16 "The Pied and White Wagtails" (pp. 233-252). <Ex-libris HSS.>

SINGH, H. S., Bharat S. Patel, Rishad Parvez, V. C. Soni, Nita Shah, Ketan Tatu and Dimple Patel. 1999. *Ecological Study of Wild Ass Sanctuary (Little Rann of Kutch)*. 1st ed. Gandhinagar: Geer Foundation. Hbk. (22.3 x 28.2 cm), pp. 1-300. The work is a comprehensive report on the flora and fauna of the region. Chapter 8, is "Avifauna" of the region, (pp.65-108), Annexure 8.1(pp. 276-278) is "List of birds and their sites of occurrence in the Wild Ass Sanctuary and its environs" and Annexure 8.2 is "List o <Ex-libris HSS.>

SINGH, P. 1999. *Bird Survey in Selected Localities of Arunachal Pradesh, India* (March 1997-July 1998). Dehra Dun: Wildlife Institute of India. Pbk., pp. iii, 92. <Not seen.>

SINGH, Rajeshwar Prasad Narain. 1996. *Bharat ke Pakshi*. 3rd ed. New Delhi: Publications Division, Information and Broadcasting Ministry. Pbk. (16 x 24 cm), pp. i-iv, 1-251. In Hindi An interesting account of popular nature peppered with sententious remarks on common birds from vernacular Indian literature. <Ex-libris HSS.>

SINGH, Rajpal. 2005. *Birds of Bharatpur*. 1st ed. New Delhi: Prakash Books. Pbk. (18 x 24 cm), pp. 1-128, col. photos by the author and Daulat Singh. The work describes the famous park and some of the important bird species found there including a checklist. <Ex-libris HSS.>

SINGH, Suresh. 1971. *Shikar ke Pakshi*. 1st ed. Lucknow: Hindi Samiti Information Department, Government

of Uttar Pradesh. In Hindi. Hbk. (14.5 x 22.5 cm), pp. 1-425. Several line drawings, 6 colour plates. Detailed description of birds hunted for sport or for the table. <Ex-libris DS.>

SINGH, Suresh. 1992. *Bhartiya Pakshi*. 2nd ed. Lucknow: Uttar Pradesh Hindi Sansthan. In Hindi. Hbk. (21 x 28 cm), pp. 1-280, 6 col. pll. and b & w illus. The work describes 400 species of birds found in India. <Ex-libris HSS.>

SINGH, K. P. and Singh, J. S. (eds.) 1992. *Tropical Ecosystem: ecology and management*. New Delhi: Wiley Eastern. There is a chapter on threatened fauna of the Indian grasslands. <Not seen.>

SINHA, Bitapi C. 2001. *Book on State Animals, Birds, Trees and Flowers of India*. Dehra Dun: Wildlife Institute of India. Pbk., pp. v, 39. <Not seen.>

SIVARAMAMURTI, C. 1974. *Birds and Animals in Indian Sculpture*. New Delhi: National Museum. Hbk. (22 x 28 cm), pp. 1-44, 5 col. and several b & w pll. The work is an extensively illustrated and it has an overview of the fauna and avifauna depicted in paintings and primarily sculpture. <Ex-libris DS.>

SIVAPERUMAN, C., Q. H. Baqri, G. Ramaswamy and M. Naseema (eds.). 2009. *Faunal Ecology and Conservation of the Great Indian Desert*. 1st ed. Berlin: Springer-Verlag. Hbk. (15 x 21.5 cm), pp. i-xviii, 1-219. The chapters with ornithological content are: "Present Status of Vultures in The Great Indian Desert" by Chhangani, A. K. (pp. 65-83), "Structure of an Arid Tropical Bird Community, Rajasthan" by C. Sivaperuman, S. Dookia, P.L. Kankane & Q. H. Baqri (pp. 85-98), "Changing Avian Diversity in Jodhpur, Western Rajasthan" by H. Singh (pp. 99-112), "Avifaunal Diversity in the IGNP Canal area, Rajasthan" by C. Sivaperuman & Q. H. Baqri (113-118) and "Impact Assessment of the Indira Gandhi Canal on the Avifauna of the Thar Desert" by M. Idris, P. Singh & S. Johari" (pp. 119-135). <Ex-libris HSS.>

SMITH, A. Mervyn. 1904. *Sport and Adventure in the Indian Jungle*. 1st ed. London: Hurst and Blackett Ltd. Hbk. (22 x 28 cm). The work is primarily concerned with big-game hunting. Chapter 33, pp. 253-259 is on "Wild duck trapping in South India". It describes trapping and shooting of ducks. <Ex-libris DS.>

SOLINAS, Francesco and Solphia Willmann. 2009. *Edward Lear: The Parrots* (the complete plates). Taschen GmbH, Germany Koln folio (32.8 x 49 cm), slipcase, pp. 128, colour illus. Edward Lear's monograph *Illustrations of the Family of Psittacidae or Parrots* with 42 hand-coloured lithographs was first published in 1832 when he was just 20 [for details see Pittie (2010)]. This publication is a high quality facsimile of all the plates in a loose folio with multilingual text in German, French and English. <Not seen.>

STEWART, Col. A[rthur]. E[asdale]. 1927. *Tiger and Other Game: the Practical Experiences of a Soldier Shikari in India*. London: Longmans, Green and Co. Ltd. Hbk. (14.5 x 22.5 cm), pp. i-xvi, 1-290. Black and white photos. The work is primarily concerned with game hunting, chapter xiii, pp. 197-203 is "Birds". It deals with pea fowl, grey junglefowl, green pigeon and red spurfowl shooting. Chapter xviii, pp. 245-253 is "Notes on ducks, geese, partridge etc". As the title suggests there are brief notes on shooting these species. The second edition of 1928 has a new chapter on hawk. <Ex-libris DS.>

STOREY, Harry. 1907. *Hunting & Shooting in Ceylon*. 2nd ed. London: Longmans, Green & Co. 1998. [facsimile rep. New Delhi: Asian Educational Services]. Pp. xxiii, 366, 73 b & w photos. Detailed account of Sri Lanka from a sporting point of view, drawn from the author's experiences between 1891 and 1906. Includes snipe shooting, pigeons, small game hunting with dogs, tanks and tank shooting (wildfowling), quails, partridges, spurfowl, junglefowl, peafowl and others. In appendices there is a list of shikar terms in Sinhalese and Tamil. <Not seen.>

SUMMERS-SMITH, J. Denise. 2006. *On Sparrows and Man: A Love-Hate Relationship*. Published by the author. The author explores the relationship from the both sides: how birds have exploited man, and how man has been affected by these that so often obtrude on our lives. <Not seen.>

SUNDAR, K. S. G., B.C. Choudhury and Jatinder Kaur. (Compiled and edited). 2000. *Sarus Crane Count-2000*. Dehradun: Wildlife Institute of India. <Not seen.>

SVENSSON, Lars. 1992. *Identification Guide to European Passerines*. 4th revised & enlarged ed. Stockholm: Published by the author. A useful tool for identifying many of the 229 species/subspecies of passerines which regularly occur in South Asia during winter months. <Ex-libris HSS.>

TAHER, M. A. 2009. *Birds of Bangladesh*. 1st ed. Dhaka: Scholars Pub. Hbk., pp. 200. <Not seen.>

TANVAR, Dhaybhai Tulsinath Singh. 1956. *Shikar aur Shikari*. 1st ed. Udaipur: Published by the author. Hbk. (14 x 23 cm), pp. i-xx, 1-362. The author was in the *shikarkhana* of erstwhile Mewar state during the rule of Maharana Fateh Singh and Maharana Bhopal Singh. The book is an account of shikar in the first half of the 20th century. It is concerned primarily with big game hunting. However, chapter 35 "Akash Shikar" (pp. 346-398) mentions briefly hunting of ducks, geese, partridge, quail and junglefowl. <Ex-libris DS.>

TEGETMEIER, William Bernhard. 1881. *Pheasents, their Natural History and Practical Management*. 2nd ed. Royal 4to, pp. 142, 13 engraved pl. by T. W. Wood. The first ed. had the different title "Pheasant for Coverts and Aviaries" <Not seen.>

TEGETMEIER, William Bernhard. 1888. *Pallas's Sand Grouse: Its History, Habits, Food, and Migrations and A Plea for its Preservation*. London: Horace Cox Pbk. (15 x 22.1 cm), pp. 1-24, 1 col. plate and woodcuts. An admirable account of the species that has occurred once in India at Gajner, Bikaner, Rajasthan. <Ex-libris HSS.>

THAPA, Ishana and Jhamak B. Karki. 2005. *Birds of Kanchenjunga Conservation Area*. Kathmandu: WWF Nepal. Pbk. (17.5 x 24 cm), pp. 1-82, map. A booklet with brief description of 280 species with <Ex-libris Manoj Sharma.>

TIKADER, B. K. and A. K. Das. 1985. *Glimpses of Animal Life of Andaman and Nicobar Islands*. Calcutta: Zoological Survey of India. Hbk. (16 x 24.5 cm), pp. i-xi, 1-170, map. An account of the species that occur on the Bay Islands. The bird account includes pp. 39 and Appendix ix "List of birds recorded from Andaman & Nicobar Islands" (pp. 134-149). <Ex-libris Manoj Sharma.>

TULLOCH, Maurice. C.No date, c. 1946. *The All-in-One Shikar Book*. 1st ed. Bombay: D. B. Taraporevala Sons & Co. Hbk. pp. xii, 157, with numerous illus. throughou. An everyday guide to field sports in India. A comprehensive and readable book centered on big and small gun shooting in India. Includes chapters on Small Game, Shot Gun Shooting, Partridges, Snipes, Duck, Teal and Geese. <Not seen.>

TROBE, W. M. 1990. *The Merlin*. 1st ed. Brighton: Oriol Stringer. Small 8vo., pp. 95, col. frontispiece by Bryan Hanlon, 40 col. illus. from photos, other illus. in b & w. *Calilogists Sert* <Not seen.>

VAN DE KAM, Jan, Ens B. Piersma, T. & L. Zwarts. 2004. *Shorebirds*. 2nd ed. (revised). Utrecht: KNNV Publishers. Hbk. (21.5 x 30.5 cm, with illus. cover. No dust jacket), pp. 1-368, colour photos, maps. The work is an illustrated behavioural ecology of shorebirds and other waterbirds (such as ducks, geese and gulls). <Ex-libris HSS.>

VAN DRIES NIEUWENHUYSE, Jean-Claude Génot, David H Johnson. 2008. *The Little Owl: Conservation, Ecology and Behaviour of Athene noctua*. Cambridge: University Press. ISBN 13-9780521886789 Hbk., octavo, pp. 608, illustrations. The authors have synthesised the substantial literature and provided current information regarding the species. They discuss its wide-ranging ecology, genetics and subspecies and population status by country. The work features an outstanding bibliography of literature on the Little Owl, listing publications dated from 1769 to 2007 in many languages, including Russian, English, French, German, Spanish, Portuguese, Italian and Dutch! <Not seen.> **VAN RHIJN, J. G.** 1991. *The Ruff Individuality in a gregarious wading bird*. 1st ed. London: T. & A. D. Poyser. ISBN 0-85661-062-3. Hbk. (16.2 x 24 cm, illus. dust-jacket by Ian Willis), pp. i-xii +, 1-209, maps, line drawings, tables. Contents. Half-tit. (p. i), tit. (p. iii), imprint (p. iv), conts (p. v), List of photographs (p. vi), List of figs. (pp. vii-viii), List of tables (pp. ix-x), Preface (pp. xi-xii). Introd. (pp. 1-7), The pugnacious father- the lek site, territories, satellite males, marginal males, plumage diversity, females on leks, mating & alternative male strategies (pp. 8-110), The vigilant mother- breeding habitat- breeding habitat, parental care, development of chicks (pp. 111-120), Indolence or diligence- distribution, diet and foraging, moult, migration, costs & time-schedule, do females nest near the leks which they visit? (pp. 121-160), Comparison & evolution-taxonomic relationship, courtship & mating pattern, variation in size & plumage (pp. 161-190), Epilogue (p. 191), List of bird names ment. In the text (pp. 193-194), Selected Biblio. (pp. 195-201), Index (pp. 203-209). All aspects of the ruff's life, in and out of the breeding season, come together to give an insight into this important area of biology. <Ex-libris HSS.>

VARDHAN, Harsh, Dharmendra Khandal, Harkirat Singh Sangha and Manoj Kulshreshtha. 2000. *Gyps*

Vultures Census Report 2000. Jaipur: Tourism & Wildlife Society of India. Pbk. (21.6 x 27.7 cm), pp. 1-36. <Ex-libris HSS.>

VARDHAN, Harsh, Robert R. Risebrough, Harkirat Singh Sangha and Anil K. Chhangani. 2004. *Gyps Conservation Strategies, 2004*. Jaipur: Tourism & Wildlife Society of India Pbk. (21.6 x 27.7 cm), pp. 1-34. Reports of vulture censuses undertaken in Rajasthan during 2000 and 2002 <Ex-libris HSS.>

"VANECHAR" (Acharya, Harinarayan Girdharilal, FRGS, FZS, FRES, MBOU). 1979. *Vanwagdana Vasi*. 1st ed. Ahmedabad: Gujarat Vidya Sabha. Hbk. (19 x 25 cm), pp.1-362, line drawings and several black and white photo. Each piece is concerned with mammals, insects, reptiles. The work, however, is dominated by his pieces on birds and birdlife of Gujarat (pp 53-251). <Ex-libris DS.>

VAURIE, Charles. 1949. *Notes on some Asiatic Finches*. No. 1424. American Museum of Natural History: New York. Pbk. (15.5 x 23.4 cm), pp. 1-63, maps. A report on the Carduelinae collected by Walter Koelz in Iran, Afghanistan and northern India. <Ex-libris HSS.>

VAURIE, Charles. 1949. *Notes on the birds of genus Oenanthe in Persia, Afghanistan and India*. No. 1425. American Museum of Natural History: New York. Pbk. (15.5 x 23.4 cm), pp.1-47, maps. A review of the genus *Oenanthe* with list of specimens collected by Walter Koelz. <Ex-libris HSS.> Natural History: New York. Pbk. (15.5 x 23.4 cm), pp. 1-47, maps, figures. A report on the nuthatches and creepers collected by Walter Koelz. <Ex-libris HSS.>

VAURIE, Charles. 1951. *Notes on Wrens and Dippers of Western Asia and India*. No. 1485. American Museum of Natural History: New York. Pbk. (15.5 x 23.4 cm), pp.1-19. The study is based on the specimens of *Troglodytes troglodytes*, *Cinclus cinclus* and *Cinclus pallasii* collected by Walter Koelz in Iran, Afghanistan and India. <Ex-libris HSS.>

VAURIE, Charles. 1951. *Notes on some Asiatic Swallows*. No. 1529. American Museum of Natural History: New York. Pbk. (15.5 x 23.4 cm), pp. 1-47. The study is based on swallows (c. 570) collected by Walter Koelz in Iran, Afghanistan and India. <Ex-libris HSS.>

VAURIE, Charles. 1951. *A Study of Asiatic Larks*. New York: Bull. of the American Museum of Natural History. Vol. 97, article 5. Pbk. (20 x 27.2 cm), pp.435-526, 1 black and white plate, figures, tables. The study is based on notes from Walter Koelz collections. The specimens numbering about 1800 were collected in Iran, Afghanistan and India. Contents include systematic sections on *Mirafra*, *Eremopterix*, *Ammomanes*, *Alaemon*, *Calandrella*, *Melanocorypha*, *Eremophila*, *Galerida*, *Alaunda* and *Lullula*. <Ex-libris HSS.>

VAURIE, Charles. 1949-61. *Miscellaneous Papers on Palearctic Birds* Octavo, one colour plate by C.E. Talbot Kelly, maps, figures. Each paper is individually paginated. The collection largely comprises papers from American Museum Novitates (1949-61) by Charles Vauri. <Not seen.>

VAURIE, Charles. 1959. *The Birds of the Palearctic Fauna: A Systematic Reference, Order Passeriformes*. London: H. F. & G. Witherby. Hbk. (18.5 x 25.5 cm), pp. xii, 762. <Not seen.>

VAURIE, Charles. 1965. *The Birds of the Palearctic Fauna: A Systematic Reference, Non-Passeriformes*. London: H. F. & G. Witherby Hbk. (18.5 x 25.0 cm), pp. xx, 76. <Not seen.> **VERMA, Ashok.** 2007. *Harriers in India. A Field Guide*. Dehra Dun: Wildlife Institute of India. Pbk., pp. 32. Colour plate illustrations. An extensively illustrated colour guide to the harriers found in India. <Not seen.>

VERMEULEN, J. 2000. *India. Goa. A Birding Trip*. Published by the autho. <Not seen.>

VIJAYAN, Lalita (ed.) 1995. *Avian Conservation in India*. Coimbatore: Salim Ali Centre for Ornithology and Natural History. There is a chapter on conservation of Bengal Florican by Gautam Narayan. <Not seen.>

VIJAYAN, Lalita, S. N. Prasad, M.A. Raja Mamannan and P. Kaushik 2005. *Avifaunal diversity of the Andaman Islands and their conservation*. Final Technical Report. Coimbatore: Salim Ali Centre for Ornithology and Natural History. <Not seen.>

VILLAGE, Andrew. 1980. *The Kestrel*. London: T. & A. D. Poyser. Hbk., 8vo, pp. 300. Illustrated by Keith Brockie. An authoritative account of one of the most successful raptors. <Not seen.>

VIRA, Raghu and K. N. Dave. 1949. *Indian Scientific Nomenclature of Birds of India, Burma and Ceylon*. 1st ed. Nagpur: The International Academy of Indian Culture. Hbk., pp. xxix, 438. English- Sanskrit. The work

gives Sanskrit nomenclature to all the bird forms found in the Indian subcontinent and has 2293 entries. <Not seen.>

VOGEL, Jean Philippe. 1962. *The Goose in Indian Literature and Art*. 1st ed. Leiden: E. J. Brill. Hbk. (20 x 27.5 cm, illus. laminated board), pp. i-vi, 1-74, 12 b & w photos, 2 fig. (pp. 67-68).

Contents; Half-tit. (p.); tit. (p.); *Conts.* (p.iii); *List of illus.* (p.iv); *Foreward* (pp. v-vi by F. D. K. Bosch, P. H. Pott, A. H. N. Verwey); *Introd.* (pp.1-16); *Goose in the Epics* (pp.17-29); *The Goose in Buddhist Literature* (pp. 30-43); *The Goose in Indian Fables and Fairy-Tales* (pp. 43-54); *The Goose in Indian Art* (pp. 54-74). A scholarly treatise on the position of the goose in the Indian literature and art. The author successfully argues that *hamsa* of Indian culture is not swan but goose. <Ex-libris HSS.>

WALDEN, Arthur Viscount. 1870. *On the Sun-Birds of the Indian and Australian Regions* [and other Ibis papers]. London: The Ibis. Octavo, ten hand coloured plates by John Gerard Keulemans. An excellent collection of Ibis papers primarily by Walden and Wardlaw Ramsay on South Asian birds. <Not seen.>

WALKER, David. 1923. *The Prince in India: A Record of the Tour of His Royal Highness the Prince of Wales – November 1921 to March 1922*. Bombay: Bennett, Coleman & Co. <Not seen.>

WALTON, Captain H. J. 1906. *On the Birds of Southern Tibet*. London: British Ornithologists Union. <Not seen.>

WARHAM, J. 1990. *The Petrels: their ecology and breeding systems*. London: Academic Press. The author sets out the basics of petrel biology, drawing on both his own research and the range of published literature. The opening chapters summarize the biology of each family before going on to look in detail at comparative aspects of their breeding ecology. <Not seen.>

WATSON, Donald. 1977. *The Hen Harrier*. 1st ed. Hertfordshire: T. & A. D. Poyser. Hbk., octavo, pp. 307, 4 col. pll. and b & w illus. ISBN-13: 9780856610158 ISBN: 0856610151. The book opens with the world distribution of the harrier family, then there is a fuller treatment of the species, its history and present status. <Not seen.>

WATSON, Jeff. 1997. *The Golden Eagle*. 1st ed. London: T. & A. D. Poyser. Quarto, pp.1-392, col. frontispiece by Donald Watson, b & w illus. by Keith Brockie, 78 figures, maps, appendices, tables. ISBN13: 9780856610998 ISBN: 0856610992. A comprehensive monograph on studies in Scotland, but including information derived from North America and Europe. <Not seen.>

WAYRE, Philip. 1969. *A Guide to the Pheasants of the World*. 1st ed. London: Country Life. Hbk (19.5 x 26 cm), pp. 176, 31 colour plates by J.C. Harrison. <Not seen.>

WEAVER, Peter. 1981. *The Birdwatcher's Dictionary*. 1st ed. Calton: T. & A. D. Poyser. Hbk. (14.5 x 22.2 cm, dust-jacket), pp. 1-155, several line drawings by Michael Hodgson. ISBN 0 85661 028 3. The author has defined more than 1100 ornithological words and terms. <Ex-libris HSS.>

WEICK, Friedhelm and Leslie H. Brown. 1980. *Birds of Prey of the World*. Collins: London. Hbk. (21 x 29 cm), pp.1-159. 40 colour plates, several line drawings. Colour plates depict all the diurnal birds of prey of the world. Good for identification of the birds, it was inspired by Peter Scott's similar work on waterfowl of the world. <Ex-libris DS.>

WELLS, M. G. 1998. *World Bird Species: With alternative English and scientific Names*. 1st ed. Tring: Worldlist. Hbk., large 8vo, pp. 671. A comprehensive checklist of 9,941 world bird species with alternative English and scientific names used in modern field guides, checklists and scientific papers. Indicates which species have universal recognition and which are currently proposed and accepted by a limited number of specialists, introduces the concepts and major terms used in modern classification theory and conservation status of each species. <Not seen.>

WEISHU, Xu. 1989. *Birds in China*. Beijing: Foreign Languages Press. Translation by Zhou Lifang and Liu Bingwen. Illustrations by Wang Binyang. ISBN 7-119-00069-1, 0-8351-1967-X. Pbk. (18.8 x 25.8 cm), pp. i-iii, 72 pp, colour photographs and illustrations, other black and white illustrations. An interesting account of the variety, distribution and habits of China's birds many of which occur in South Asia. <Ex-libris HSS.>

WHITEHEAD, John. 1990. *Himalayan Enchantment-An Anthology - Frank Kingdon-Ward*. 1st ed. London:

Serindia Publications. ISBN 0 906026 22 9. Hbk. (16.2 x 24 cm), illus. dust-jacket, front cover-a gorge on the Nam Tamai River; back cover- a porter with the trunk that accompanied Kingdon-Ward through most of his life), pp. i-xviii, 1-254, map, 21 b & w photos. Chapter 14, "Wild Aviary", (pp. 162-169) is on birds. <Ex-libris HSS.>

WILLIAMSON, Capt. Thomas. 1807. *Oriental Field Sports: being a complete detailed and accurate description of the Wild Sports of the East.* London: Edward Orm. (Lim. ed. reproduced in 1984 by Anthony Atha, Norfolk). Hbk., oblong folio, pp.1-150, 40 hand col. plates. It is the first book published on shikar in India exactly fifty years after the Battle of Plassey. Although primarily concerned with big game hunting Chapter xxvi, pp. 98-101 is on shooting peafowl and a col. plate depicting the same. <Ex-libris DS.>

WOOD, J. Duncan. 2003. *Horace Alexander: 1889-1989: Birds and Binoculars.* Sessions of Press/ Ebor Press. Pbk., pp. 191, black & white illustrations. The author, a keen birdwatcher who was encouraged at a young age by Horace Alexander, provides a fascinating account of his life as an ornithologist. Between 1927-55 he spent some twelve years in India in various bits and pieces. <Not seen.>

WOODLEY, Keith. 2009. *Godwits: longhaul champions.* Auckland: Penguin Group. Pbk. (21 x 26 cm), pp. 1-240, col. photos. Tells the miraculous story of the Bar-tailed Godwits and their migrations. <Ex-libris HSS.>

WOODYATT, Maj.-Gen Nigel. 1928. *The Sporting Memories: Forty years with Note-Book and Gun.* London: Jenkins. Hbk. (14 x 21.5 cm), pp. i-x, 1-320, several b & w photos. The primary content of the book is big game hunting. Chapter xvi, "Small Game Shooting", (pp. 207-223) has account of duck shooting; Chapter xvii, "Mainly about Waterfowl", (pp. 223-238); Chapter xviii, "Himalayan Pheasents", (pp. 239-245) concern with sport with the birds mentioned in the title. <Ex-libris DS.>

WOOLENHAUPT, H. 1991. *Report of a Field Trip to the Wintering Areas of Black-necked Crane (Grus nigricollis) in the Phobjika region.* Field Doc. No.15, FO. DP/BHU/85/106. Thimphu: Ministry of Agriculture, Dept. of Forests and FAO <Not seen.>

YEATES, G. K. 1950. *Flamingo City.* 1st ed. London: Country Life Hbk. (16.5 x 24.1 cm), pp. 1-210, several col. and b & w photos. Although primarily records the author's journey to observe and photograph the flamingoes at Camargue, Appendix One (pp. 179-199) gives a full review of the existing knowledge and literature about the flamingoes <Ex-libris HSS.>

YOUNG, Peter. 2008. *Swan.* 1st ed. London: Rseaktion Books. Pbk. octavo, pp. 224, illus. The book describes natural and cultural history of swans, their power and endurance; formation flying, which conserves energy and allows long-haul flights to be made at speed; habitat and feeding habits. The extensive cultural history of the swan, from its frequent portrayal in painting, sculpture, porcelain and furniture; to its use in heraldry; the Greek myth of Leda and the Swan; and, Hans Christian Andersen's "The Ugly Duckling", and "Swan Lake" are also discussed. The book goes on to examine the uses and abuses of swans; questions of conservation; of the swan as food; and, its widespread use in logos and brand-names. <Not seen.>

YOUNGSON, Thomas. 1821. *Indian Birds.* 1821-1826. Oblong folio (28.5 x 43.4 cm), 163 fine mounted original watercolour drawing on thin brown paper, 7 mounted unfinished drawings, 2 watercolor drawings, 2 pencil drawings and 2 copies of a lithograph all laid in approximately 350 pages of manuscript (handwritten) text in brown ink. A superb, lovely very detailed and varied collection of Indian ornithological watercolour drawings, most by Thomas Youngson, but with a few superbly executed subjects by Indian artists. Youngson (1784-1839) was born in Aberdeenshire, the son of clergyman. In 1803 he joined the Madras Infantry and was stationed first at Bellery and then at Jalna in Hyderabad. <Not seen.>

YLLA. 1958. *Animals in India.* 1st ed. London: Hamilton. Hbk. (22 x 28 cm), pp.1- 132, col. and b & w photos. The book is a posthumous publication of the photographer's photos (pp. 76-89) of wild animals and birds. It also has her diary (pp. 41-43) concerning the visit to Bharatpur where she died photographing a bullock- cart race. Pp. 76-89 are her bird photographs taken by her during her sojourn in India. <Ex-libris DS.>

ZAKIRA, Khanaus and Ahmad Manzoor. 1987. *Pakistan ke Dilchasp Parinde.* Karachi. In Urdu. Pp.200. <Not seen.>

ZHENG, G. M. ed. 2005. *A checklist on the classification and distribution of the birds of China.* Beijing: Scientific Press. <Not seen.>

ZALLES, Jorje I. and Keith L. Bildstein. 2000. *Raptor Watch: A Global Directory of Raptor Migration*

Sites. Smithsonian Books. Small 4to, pp. xviii, 438, 20 b & w photos, 38 line illus. A comprehensive guide detailing accounts of 388 globally significant raptor "watch sites". For each site, the contributors document raptor species, migration periods, protection status, land use, and monitoring activities. <Not seen.>

ZOOLOGICAL SURVEY OF INDIA

Occasional papers published as 'miscellaneous publications' under *Records of the Zoological Survey of India* are listed below:

ANONYMOUS. 1989. *A general Account of Mangrove Fauna of Andaman and Nicobar Islands*. <Not seen.>

ANONYMOUS. 1991. *Fauna of Lakshadweep*. *State Fauna Series-2*. Pp. 413 <Not seen.>

ANONYMOUS. 1992. *Fauna of West Bengal*. Part 1. Mammals, aves and wildlife. Pp. 443. <Not seen.>

ANONYMOUS. 1992. *Rushikulia Estuary, Orissa, India*. Pp. 26. <Not seen.>

ANONYMOUS. 1995. *Fauna of Western Himalaya (Part-1) – Uttar Pradesh* Pp. 227. *Fauna of Western Himalaya (Part-2) – Himachal Pradesh*. Pp. 359+16 plates ISBN 81-8171-077-02005. <Not seen.>

ANONYMOUS. 1995. *Fauna of Rajaji National Park*. Pp. 323. <Not seen.>

ANONYMOUS. 1995. *Fauna of Indravati Tiger Reserve, Madhya Pradesh* (12 Papers). Pp. 107. <Not seen.>

ANONYMOUS. 1995. *Fauna of Kanha Tiger Reserve, Madhya Pradesh* (12 Papers). Pp. 117+ 6 colour photos. <Not seen.>

ANONYMOUS. 1995. *Fauna of Tiger Reserve (Sundarban, Palamau, Simlipal & Manas)*. Pp. 127. <Not seen.>

ANONYMOUS. 1995. *Fauna of Meghalaya. Vertebrates*. Part 1. *State Fauna Series - 4*. Pp. 679. <Not seen.>

ANONYMOUS. 1995. *Fauna of Indravati Tiger Reserve, Madhya Pradesh* (12 Papers). Pp. 107. <Not seen.>

ANONYMOUS. 1995. *Fauna of Kanha Tiger Reserve, Madhya Pradesh* (12 Papers). Pp. 117+ 6 colour photographs. <Not seen.>

ANONYMOUS. 1995. *Hugli Matla Estuary, West Bengal*. Pp. 542 <Not seen.>

ANONYMOUS. 1995. *Fauna of Chilka Lake*. Pp. 672, several colour plates and drawings. <Not seen.>

ANONYMOUS. 1997. *Fauna of Nanda Devi Biosphere Reserve*. ISBN 81-85874-00-X. <Not seen.>

ANONYMOUS. 1998. *Fauna of Mahanadi Estuary, Orissa*. Pp. 218. <Not seen.>

ANONYMOUS. 1999. *Fauna of Valmiki Tiger Reserve*. Pp. 84+6 colour plates. ISBN 81-85874-08-5. <Not seen.>

ANONYMOUS. 2000. *Fauna of Gujarat, Part-1: Aves*. *State fauna series 8*. Pp. 464. <Not seen.>

ANONYMOUS. 2001. *Fauna of Nilgiri Biosphere Reserve*. Pp. 330+8 plates. ISBN 81-85874-55-7. <Not seen.>

ANONYMOUS. 2000. *Fauna of Renuka Wetland*. Pp. 187, 6 pp. photos/maps. ISBN 81-85874-51-4. <Not seen.>

ANONYMOUS. 2001. *Fauna of Godavari Estuary*. Pp. 166. <Not seen.>

ANONYMOUS. 2002. *Fauna of Sanjay Gandhi National Park*. Pp. 54+8 colour photos. ISBN 81-85874-56-5. <Not seen.>

ANONYMOUS. 2002. *Eravikulam National Park*. Pp. 97+12 plates. ISBN 81-85874-59-X. <Not seen.>

ANONYMOUS. 2002. *Fauna of Ujani*. Pp. 196. ISBN 81-85874-62-X. <Not seen.>

ANONYMOUS. 2002. *Fauna of Kabar Lake Wetland (Bihar)*. Pp. 134. (8 colour plates). ISBN 81-85874-67-5. <Not seen.>

ANONYMOUS. 2003. *Fauna of Asan Wetland (Dehra Dun)*. Pp. 56. ISBN 81-8171-003-7. <Not seen.>

ANONYMOUS. 2004. *Fauna of Sambhar Lake*. Pp. 200. ISBN 81-8171-057-6. <Not seen.>

ANONYMOUS. 2004. *Fauna of Desert National Park, Rajasthan (Proposed Biosphere Reserve)* ISBN 81-8171-049-5 <Not seen.>

ANONYMOUS. 2004. *Fauna of Pench National Park (Maharashtra)* ISBN 81-8171-054-1 <Not seen.>

ANONYMOUS. 2004. *Faunal Diversity of Saipung Wildlife Sanctuary/Narpur Reserve Forest Jaintia Hills, Meghalaya*. Pp. 66+4 plates. ISBN 81-8171-051-3 <Not seen.>

ANONYMOUS. 2005. *Fauna of Melghat Tiger Reserve (Maharashtra)* Pp. 500+ 20 colour photos. <Not seen.>

- ANONYMOUS. 2005. *Fauna of Nath Sagar Wetland*. Pp.192. ISBN 81-8171-084-3 <Not seen.>
- ANONYMOUS. 2006. *Fauna of Tadoba-Andheri Tiger Reserve (Maharashtra)*. Pp. 309+ 16 colour pll.<Not seen.>
- ANONYMOUS. 2006. *Fauna of Biligiri Rangaswamy Temple Reserve, Karanataka*.Pp. 263+ 20 pll. <Not seen.>
- ANONYMOUS. 2005. *Fauna of Manipur, Part- 1*. State fauna series 10. Pp. 234. <Not seen.>
- ANONYMOUS. 2006. *Fauna of Sikkim, Part-1, Vertebrates*. Pp. 264. <Not seen.>
- ANONYMOUS. 2006. *Sanjay Gandhi National Park, Borivali, Maharashtra*. Pp. 188+ 8 plates. <Not seen.>
- ANONYMOUS. 2007. *Fauna of Kudermukh National Park, Karanataka..* Pp. 205+11 plates. <Not seen.>
- ANONYMOUS. 2007. *Fauna of Bannerghatta National Park, Karanataka*. Pp.141+16 plates. <Not seen.>
- ANONYMOUS. 2008. *Fauna of Pin Valley National Park, Himachal Pradesh*. Pp.147+8 plates. <Not seen.>
- ANONYMOUS. 2008. *Fauna of Corbett Tiger Reserve, Uttarakhand*. Pp. 228+24 plates.<Not seen.>
- ANONYMOUS. 2008. *Vertebrate Fauna of Kangerghati, Guru Ghasidas and Sanjay National Parks*. Pp. 263+20 plates. <Not seen.>
- ANONYMOUS. 2008. *Fauna of Lunar Wildlife Sanctuary, Maharashtra*. Pp.208+8 plates<Not seen.>
- ANONYMOUS. 2008. *Fauna of Kopli River Hydal Project*. Pp. 91. ISBN 978-81-8171-187-8. <Not seen.>
- ANONYMOUS. 2009. *Fauna of Pachmarhi Biosphere Reserve, Madhya Pradesh*. Pp. 263+20 plates. <Not seen.>
- ANONYMOUS. 2009. *Fauna of Bandhavgarh Tiger Reserve (Madhya Pradesh)* . Pp.291.<Not seen.>
- ANONYMOUS. 2009. *Faunal Diversity of Vembanad Lake; A Ramsar site in Kerala; India*. Pp.192. ISBN 978-81-8171-222-6. <Not seen.>
- ANONYMOUS. 2009. *Fauna of Nal Sarovar Gujarat*. Pp.137 + 12 plates ISBN 978-81-8171-235-6. <Not seen.>
- ANONYMOUS. 2009. *Faunal Diversity of Pong Dam and its catchment area (District Kangra; Himachal Pradesh)*. Pp.138 + 8 plates ISBN 978-81-8171-236-3. <Not seen.>
- ANONYMOUS. 2009. *Fauna of Krishna Estuary*. Pp. 298. <Not seen.>
- ANONYMOUS. 2009. *Faunal Diversity of Simbalbara Wildlife Sanctuary (H.P.)*. Pp.118. <Not seen.>
- ANONYMOUS. 2009. *Bhimashankar Wildlife Sanctuary*. Pp.284. <Not seen.>
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The present listing shows that no listing can be complete, but that is not to distract from the value of Pittie's painstaking work. Having said that, one must take a critical look at some stark omissions as listed above and many more which no doubt have eluded us. Actually, such a bibliography must have the benefit of wide circulation among ornithologists and bibliophiles before publication. Such obviously has not been the case with this book. For, in that event, many entries marked "not seen" would have been annotated indeed, which is the central theme of the work apart from reducing omissions which are many as seen from the listings noted here. Pittie's work includes general shikar and sporting books concerning wild animals which have substantial material on avifauna. In this context, Kenneth P. Chzeck's remarkable "An Annotated Bibliography of Asian Big Game Hunting Books, 1780-1980" comes to mind. Published in 2003, it followed his equally exhaustive work on Africa. His Asian work has some 800 listings substantial numbers of which concern South Asia. A close look at these listings and better still, a look at the books themselves would certainly have given scores of worthy entries to the book. One single library which would have given access to all the listed books on India in Czeck's bibliography, is the Oriental and India Office

Collections of the British Library in London. The National Library at Kolkata too could have been checked out for these works.

Pittie has done yeoman service by providing us a timeline of books from 1713 to 2009 alluded to earlier. His introduction also includes a short but remarkable survey of major works on ornithology of the region which is a boon to anyone interested in the history of the subject in South Asia. Human memory being what it is, authors of books remain little more than names on the title pages of books to researchers as time goes on. The book has brief biographies of important authors. This gives us a window of information to more than 200 stalwarts of the field. This wealth of information collected from different sources and put together would be hard to come by elsewhere.

Pittie's work is a must for an ornithologist, a serious birdwatcher or a bibliophile. We have no doubt that it will be referred to and read with admiration for decades to come. We look forward to a second edition with the inclusion of all the omissions listed here and others that the author must surely have come across subsequently.

Conscience is the light of the soul that burns within the chambers of our psychological heart. It raises its voice in protest whenever anything is thought of or done contrary to righteousness

A.P.J. Abdul Kalam

PROTECTED AREA FOR NORTH INDIAN ELEPHANTS

*Dr. K.N. Sing & **Umendra Sharma

1.01 INTRODUCTION:-

Government of India and State Governments are conscious of the deteriorating wildlife situation and have acted towards creating safer zones for the wild life within the Forests by way of creating what are called 'Protected Areas'.

Protected area is a broad term given primarily to National Parks and Sanctuaries meant for affording protection to wild animals and their habitat. They also include game reserves and biosphere reserves. Protected areas have been set up all over the world with the specific aim of protecting and conserving animals and plants. In India too these have been set up in various parts of the country.

2.01 MATERIALS AND METHODS:-

The state governments of Uttar Pradesh and Uttarakhand have issued notifications declaring certain areas as National Parks, Wildlife sanctuaries or reserves. These notifications as well as the working plans of different related forest divisions were studied. The management plans of the protected areas were studied to arrive at the descriptions of the wildlife and habitat of the area.

3.01 RESULTS AND DISCUSSIONS:- The total area of the elephant habitat in erstwhile U.P. is 8,02,171.06 hectares. It includes Rajaji National Park, Corbett National Park, the area of Corbett Tiger reserve outside Corbett National Park and Dudhwa Tiger Reserve. The area which includes two National Parks and one Tiger Reserve is the protected area for North Indian Elephants. The Constituentwise break up of the area is given below:-

Table- 3.01
Protected areas

Sl. No.	Name	Area (In hectare)
(i)	Rajaji National Park	82,042.19
(ii)	Corbett Tiger Reserve-	
	Corbett National Park	52,082.40
	Reserve Forest	46630.65
	Sona Nadi Sanctuary	30,117.60
	Total	128830.65
(iii)	Dudhwa Tiger Reserve	
	Dudhwa National Park	49,029.19
	Buffer area of National Park	19,003.71
	Kishanpur Sanctuary	20,341.00
	Katerniaghat Wild Life Sanctuary	40,009.44
	Buffer Area of Katerniaghat Wild Life Sanctuary.	15,002.75
	Total	1,43,386.09
	Grand Total	3,54,258.93

3.02 Rajaji National Park:-

In 1983, the Rajaji National Park was established with the aim to preserve biodiversity of Siwalik ecosystem in U.P. (presently Uttarkhand). At that time it included the then existing Wildlife Sanctuaries viz Rajaji, Motichur and Chila. Later Rajaji National Park was reorganised by including the areas of the then Siwalik forest division, Lansdowne forest division, Dehradun East forest division and Dehradun West forest division. The total area of Rajaji National Park is 820.4219 km² now and it even covers parts of 3 districts, Dehradun, Pauri and Haridwar.

West Dehradun forest division	2,661.60 ha
East Dehradun forest division	21,016.30 ha
Siwalik forest division	33,356.59 ha
Lansdown forest division	25,007.70 ha
Total	82,042.19 ha

The areawise details of Rajaji National Park with respect to different Wild Life Sanctuaries and reserve forests are as under:-

Wildlife sanctuary Motichur	89.5 km ²
Wildlife sanctuary, Rajaji	247.0 km ²
Wildlife sanctuary, Chila	249.0 km ²
area of other reserved forests	234.5 km ²
Total	820.0 km²
	(as per management plan)
	or say 82,042.19 ha

Districtwise area of the National Park is as under:-

Dehradun distt.	23,677.90 ha
Pauri distt.	25,007.70 ha
Haridwar distt.	33,356.59 ha
Total	82,042.19 ha

Located within the Siwaliks, the Rajaji National Park is rich in Sal Forests. There is heavy biotic pressure on the southern slopes of Siwaliks. Though at present only few tigers remain in Rajaji National Park, the number was fairly high about 50 years ago, so much so that F.W. Champion had named it as "Tiger Land". Rajaji National Park is now the main elephant habitat spreading from Sharda river to Yamuna river (presently in Uttakhand). The elephant habitat too is almost totally destroyed and is now facing acute corridor problem.

The Rajaji National Park is fragmented by State highways, Railway line and Electric Transmission line passing through this area, spread over three districts. Apart from this, a 14

km long Chila Power channel is the main obstruction in free movement of Wildlife. The steep banks of Canal do not allow Wild animals to cross it. Elephants are seen crossing the canal through narrow passages over and under the canal. Inside the park, the ammunition depot of army (Raiwala Cantonment) and a colony of displaced people of Tehri Dam are also situated. The three sides of the park are surrounded by township of Haridwar, Cantonment area of Clement Town Dehradun, I.D.P.L. and township of Rishikesh. Further, there are 60 villages on the outer boundary of the park. For the last several years Gujars whose main source of income is buffalo milk trading are also living inside it. About 100 families of Gujars reside inside the park.

The project to rehabilitate the Gujars outside the park has not been successful till now. Besides Gujars, many Gothias and Taungya cultivators have also moved inside the park.

Though the rivers Ganga, Rawasan, Suswa etc. flow through the park, the park starts facing the problem of shortage of water with the onset of summers when the water flowing in the natural sources looks like a thin water line. In such conditions artificially made water holes play an important role in the survival of wildlife. The water problems also affect the cattle of Gujars and nearby villages. Therefore there is the tussle for the available water between the wildlife and cattle in which ultimately wildlife is forced to retreat.

In the summers, while elephants can be sighted easily in the park, smaller animals like cheetal, kakar, sambhar etc. are sighted only near water holes. The wild pig may also be sighted easily. It is observed that the competition for food with cattle has resulted in change in behaviour of elephants. Elephants are themselves destroying their habitat, uprooting the trees. Due to the fragmentation of Rajaji National Park, the movement of elephants from Chila Wildlife Sanctuary situated on left bank of Ganga river, and Motichur wildlife Sanctuary on the right bank of Ganga river has weakened considerably and they seem to be restricted in small pockets. Thus the annual migration of elephants is on the decline and may eventually stop. The efforts to link fragmented parts of park have not succeeded.

The forests of East and West Dehradun forest divisions were managed under the working plan prepared by K.N Singh. Under this plan a separate Wildlife Overlapping Circle was constituted. From 1983 to 1993 the park was not managed under any management plan. The plantation of species for wildlife, eradication of harmful weeds and development of habitat were tried along with the establishment of corridors and relocation of Gujars. A scheme of Govt. of India "Elephant Project" prescribes strengthening the resources of park, control the poaching of wildlife, moderating the human wildlife conflict and establishing the corridor between the fragmented parts of the park. These prescriptions are being tried. In 1995, project of the rehabilitation of Gujars got success to some extent and about 70 families willingly settled in Pathri Block. The efforts to rehabilitate more Gujar families in Pathri Block and to provide them necessary facilities are on. A permanent brick boundary has been erected around the park.

3.03 Corbett Tiger Reserve:-

The Corbett Tiger Reserve is the ecological and administrative extension of Corbett National Park. It comprises Corbett National Park, Sona nadi Wild life sanctuary and

Reserved forest areas of Ramnagar Forest Division, Tarai West Forest Division and Kalagarh Forest division. The total area of the Tiger reserve is 1,28630.650 ha and is spread over four districts-Nainital, Pauri Garhwal, and Almora. The districtwise details of area are shown below:-

Table 3.02
Districtwise Area of Corbett Tiger Reserve

District	Corbett National Park	Sona River W.L. sanctuary	Reserved forest	Total area (ha)
Pauri Garhwal	35,506.37	30,117.60	26,455.23	92,079.20
Nainital	16,576.03	-	18,180.32	34,756.35
Almora	-	-	1995.10	1,995.10
Total	52,082.40	30,117.60	46,630.65	1,28,830.65

Sona nadi wildlife sanctuary was established in 1991 and was kept under the administrative control of Corbett National Park. The declaration of areas of Ramnagar and Tarai west Division as buffer zone of the reserve was done in 1990 and was placed under the administrative control of the National Park.

Corbett National Park established in 1936 is the central point of the Tiger reserve. It has got the honour of being the first wild life sanctuary of India. In 1936 it was named Hailley National Park, after the name of Hon'ble Sir Malcom Hailley . Afterward it was renamed as Ramganga National Park and ultimately named as Corbett National Park. The final name of the park was given after the name of Sir Jim Corbett who was dedicated to nature. Ridding the hills of the maneaters he was immensely respected and loved by the people of Kumaon. He also helped in the demarcation of natural boundaries of the park. He is revered as Loknaik in Kumaon.

Corbett National Park is situated in Kumaon and Garhwal along foothills. In rainy season, rhe soil erosion is high. The area abounds in small drains, natural water sources and rivulets which finally drain into the river Ramganga. The river Ramganga is the lifeline of the reserve.

The main forest species of Corbett National Park is Sal represented by dry Siwalik sal, moist Siwalik sal, North dry mixed deciduous sal and moist Bhabhar doon Sal. Corbett National Park is blessed with dense sal forests as also vast grasslands locally called "chaur". The 'Chours' of Corbett National park play an important role in the management of wild life of the park. The Dhikala chaur is very large, having area of approx 800 ha. There are many other big chaurs named khinanauli chaur, Pater pani chaur, Patila chaur covering hundred of ha of area. The presence of such big grasslands between the sal forests is surprising; They play an important role in providing shelter and fodder to the elephants, deer and other fauna.

In 1974, an ambitious project of Govt. of India called "Tiger Project" was initiated in the Corbett National Park. Though the main flagship species of Corbett National Park is Tiger, this park is also an abode and alternate resting place for a large number of elephants found in North of India. Leopard, wildcat, fishing cat, leopard cat are other carnivorous

species of the park. Cheetal, Sambhar, Kakar etc are also found in the park and can be sighted in chauras and in forests.

Corbett park is the heaven for the avifauna. About 550 bird species are found in this Park, which come to about 40% of the total bird species found in India. It is praiseworthy that in the Park, the birds of hills as well as those of plains can be sighted in different seasons of the year. River Ramganga is the favourite habitat of crocodiles. The famous lion fish is also found in abundance in Ramganga.

Many species of snakes including cobra, krait, viper, king cobra and python are common in the Park. The water birds are abundant in the Kalagarh reserve area, and other water bodies. In the beginning of 70's the Kalagarh reservoir was constructed over about 8000 ha land of the Park. When full, most of the area is submerged in the reservoir but with change in water level of the reservoir, the submerged area reduces.

The main attraction for the tourists are Dhikala, Bijrani, Khenanauli, Sarpduli and Kalagarh etc. are also other favourite spots for tourists.

The park's southern boundaries are very sensitive to poaching and illegal hunting. There is immense biotic pressure on its northern and southern boundaries. The biotic pressure is increasing with the development of big towns in the vicinity of Corbett National Park affecting the natural habitat and biodiversity of the park adversely.

Since 1974, it is being tried to restrict some activities in the Park for its scientific management. In the Park many works have been done for habitat improvement, viz. eradication of harmful weeds, fire protection and enhancing water availability for wildlife. Recently a 10 year management plan has been prepared for the management of the Park, Which also includes tourism management and Eco-development. Narkul plantation, eradication of lantana and annual burning of chauras is being carried out for the habitat development in the park.

3.04 Dudhwa Tiger Reserve:-

Dudhwa Tiger Reserve comprises Dudhwa National park, Kishanpur Wild Life Sanctuary and Katrniaghat wild life sanctuary. The park is located on the Indo-Nepal border in Nighasen Tehsil of district Lakhimpur-kheri, and lies between 28°18' N and 28°42' N latitudes and at 28°28' E longitude. The total area of the Park is 49029.19 ha reserved forest. An area of 12401.39 ha. serves as its northern buffer and an area of 6602.32 ha as its southern buffer. The area, which constitutes the Dudhwa National Park and its buffer, was once part of the North Kheri Forest Division. Park was finally notified through the Govt. of U.P. Forest Department Notification number 6991/14-3-1-74, dated 21.1.77 and established on February 1, 1977.

The Kishanpur Sanctuary spreads in Gola tehsil of Lakhimpur District and the Powayan tehsil of Shahjehanpur district. It lies between 28° to 28° 42' N lat and 80° to 80° 50'E long and covers area of 20341.00 ha. The area of the Sanctuary was once part of the South Kheri Forest division. It was established on 1.1.1973 in continuation of orders issued

vide GOUP notification no. 111/14-3-31/1972, dated 7.10.1972.

The Katarniaghat WLS is located in the Nanpara Tehsil of district Baharaich. The Indo-Nepal border constitutes the northern boundary of the WLS. The entire area, total 40009.35 ha. is situated between 28°6'N & 28° 24'N latitudes and 81°2'E & 81°19' E longitudes. Consequent upon Govt. of UP notification no 388/14-3-32/1976 dated May 31, 1976, these forests came to be constituted as a wild life sanctuary, together with the adjoining 15002.75ha. of Reserve forests, which serve as buffer and constitute one ecological unit. It is one of the few remnants of the rich and diverse tarai eco-system, having connectivity with the Royal Bardia National Park in Nepal which lies to the north and Dudhwa National Park, which lies to the west of the Sanctuary.

All the three Protected Areas constituting the Tiger Reserve, though separated physically, are by themselves compact and consist of continuous forest tracts. These totaling 143386.00 ha represent one of the few remaining examples of a highly diverse and productive terai eco-system, supporting a large number of endangered species, obligate species of tall wet grasslands and species of restricted distribution.

The terai with its characteristic complex of forests, tall grasslands and swamps maintained by periodic flooding, is one of the most threatened ecosystems in India. Most of the terai has succumbed to anthropogenic pressures with agriculture and homesteads replacing the rich natural vegetation of the past. In this scenario the Dudhwa Tiger Reserve stands out as the primary protected area complex of the terai with one of its components having the status of a National park. The Dudhwa National Park is the only National Park and Tiger Reserve representative of Tarai-bhabar Biogeography subdivision of the Upper Genetic Plains (7a) Biogeography province. The vegetation of the area is of North Indian Moist Deciduous type. It has some of the finest sal forests in the country, and a vast variety plants and plant communities of conservation significance.

The Dudhwa Tiger Reserve is the only place in the country to hold a potentially viable population of the sub species of swamp deer- *Cervus duvanceli duvancel*. Of the seven species of deer found in the country, five occur in this Reserve. It is also home to a sizable tiger population. Some critically endangered species such as the Bengal Florican (*Hubaropsis bengalensis*) and Hispid Hare (*Caprolagus hispidus*) find a home here. Dudhwa is also the place where the Indian great one horned rhinoceros has been successfully reintroduced. Fourteen species of mammals, ten species of birds, and eleven species of reptiles and amphibians found here are considered to be endangered and are listed in Schedule-1 of the Wild Life (Protection) Act.

The Park and Sanctuary also play a vital role in the maintenance of the water and climatic regime of the region, which in turn is vital for agriculture and other 'allied activities'.

3.05 Elephant Reserves:-

Notification of identified prime habitats of wild animals as protected areas viz.

national park and wildlife sanctuaries and providing the notified areas effective protection by enforcing the provisions of Wild Life (protection) Act has been the main strategy of wildlife conservation. The limitations of this protected area approach became amply clear by the time the "Project Tiger" came into existence. The animal with large home range cannot remain confined within the limits of notified protected areas. These are bound to stray out into area surrounding the reserves. It was because of this fact that the "Project Tiger" adopted the concept of core Zone and buffer zone. The core zones of the reserves are invariably national parks or wildlife sanctuaries and the buffer zones are managed on the principle of sustainable utilisation of forest and enrichment of the habitat through plantation of appropriate species.

The home range of elephants is hundreds of times larger than the home range of tiger and panthers because the elephants travel long distance and indulge even to seasonal migration to different habitat located far apart from each other for meeting the need of required quantities of fodder and water. Therefore provision of safe havens of limited extent cannot be effective strategy for conservation of elephants. The habitat improvement efforts under the "Project Elephant" have to be carried out in the entire habitat range of the species.

Historically elephants inhabited almost all the dense and well stocked forests found in the country but for the desert zone but by the end of 19th century elephant survived in four disjointed elephant ranges namely North India population, Central East Indian population. Southern Indian population and North East Indian population. However due to the diversion of land for various development projects and blockage of the migratory routes the elephant habitats got sub divided in to disjointed population. At the time of conceptualisation of the "Project Elephant" there were 10 elephant populations in the country namely:-

1. South West Bengal Elephant population South East Bihar- Orissa elephant population.
2. Kanery- Sonitpur Elephant population (Arunchal Pradesh, Assam)
3. Dibru- Deomali Elephant population (Arunachal Pradesh, Assam)
4. Kaziranga- Karbealeny- Intarhi Elephant population (Arunchal Pradesh Nagaland)
5. Barail- Saifuuy - Elephant population (Assam - Meghalaya)
6. Balphakram National Park and adjoining area population.
7. Nilgiri and Easternghat Elephant population (Keral, Karnatka, Tamilnadu).
8. Nilamber- Si. Vally- Coimbatore Elephant population
9. Annemalai- parabibular Elephant population.
10. Rajaji Corbett Elephant population

Home range of each of the identified elephant populations described above were designated as Elephant Reserves with the objective of moderating the impact of human activities particularly the one that were of commercial/destructive in nature and allow the nature to help this area to recuperate from effects of over exploitation. Eco-restoration of the habitat and eradication of non palatable weeds and exotic species not preferred by the

elephants were also the envisaged activities. Identification of crucial corridor of the elephants movement and removal of the bottle necks was also top priority area.

As far as North Indian Elephant Population (Rajaji - Corbett elephant reserve) is concerned, up to mid nineteenth century there was regular movement of elephants in the forests located between in the river Yamuna in the west and Sharda in the East. However the division of forest between Rishikesh - Haridwar and construction of Chilla Power Project has more or less completely stopped the seasoned migration of elephants between Motichur and Chilla forests. Efforts for restoring this migratory route have yielded no results.

In North India, Uttarkhand and U.P.states have notified the following areas as Elephant Reserve:-

Table- 3.03

State	Name of district	Name of division	Name of Range	Area of Forest division (Sq.km.)	Letter no. of G.O.I. approval	Notification by State forest
Uttarakhand	Dehradun	1.Kalsi soil division	1. timli	99.07	7-2/ooPE dated 14.2.02	Uttarkhand Govt van and Paryavaran Anubhag&2 1777/1(2) va. area. v/ 2002-1919 2002 dehradun dated 28.10.2002
		2. Dehradun forest division	1. Asorori 2.Malhon 3. Thanao 4. Lachiwala Risikesh	309.52		
		3.Rajaji National park	Whole	236.40		
	Haridwar	1. Haridwar	1.Shympur 2. chiriapur	150.30		
		2. Rajaji National park	Whole	333.62		
	Garhwal	1.Rajaji National Park	Whole	250.40		
		Lansdown Forest division	1. Laldhang 2. Kotdwar 3. Kotri 4. Dugadda	376.42		
	Nainital	Kalagarh Tiger reserv	Corbett Tiger Reserve	606.60		
		Ramnagar Tiger reserve division	Corbett Tiger reserve	350.40		
		Ramnagar Tiger division	Corbett Tiger reseve	311.00		
		Tarai East Forest div	Gaula Kishanpur Ransali Souther Jaulasal Kilpura Kauli	187.26		

		Ramnagar Forest Div	Kosi Kota Dechauri Kaladhungi Fatehpur	202.54		
		Tarai central division	Godaia Bhalada Tanda pipalparao Haldwani Barhvi	192.30		
		Haldwani Forest Div.	Chakrata Nandhaur Danda Jaula sal SHarda	674.01		
	Almora	Kalagarh Tiger reserve div	Corbett tiger reserve	20.50		
	Udhamsingh Nagar	Tarai west div	Uttari Jaspur South Jaspur	105.29		
		Tarai East Forest division	Gaula kesupur ransali Souk kilpur Dauli	288.33		
		Tarai Central division	Gadgadia Bhakhra Tanda peepalparao Haldwani Barhee	209.30		
	Tehri	Narendra nagar Forest division	Shivpuri	194.32		
		Champwat Forest Division	Boom Dogadi	148.78		
	Uttar Pradesh	Saharnpur	Siwalik Forest div Mohal Shakumbhari Barhola	127.303 84.010 108.69	7-2/2000 P.E. dt. 14.1.2006	U.P. Govt. Van Anubhag-4 no 1498/ 14-4-200- 807/20 dt. 9.9.2009
	Bijnor	bijnor Social Forestry div	Amargarh	79.990		
		Bijnor Forest Division	Kauria	68.719		
			Sahanpur	81.058		
			Rajgarh	56.058		
			Barhapur	70.317		
			hahuwal	87.943		
		Total area	744.096			
		Grand Total	6149.166			

4.01 International Elephant Reserves:-

The notification of Elephant Reserve by the Government has no statutory force. It is only an administrative measure to oversee and monitor the implementation of various activities envisaged to be carried out under the "Project Elephant".

It also helps in appointment and facilitate flow of funds to different states for carrying out the activities directed towards conservation of elephant and its habitat

From the foregoing description it would be seen that most of the elephant reserves extend to more than one state and the success in conservation of elephants in the country. The regular movement of elephant between Nepal and Dudhwa in Uttar Pradesh Bhutan and West Bengal- Assam necessitates the need of notification of International Elephant Reserves and management of their population. Little information is available on migration of elephants between India and Myanmar. Even otherwise the political conditions in Myanmar are highly congenial for setting up of international elephant reserve.

ABSTRACT

The total protected area network in northern India fit for elephant habitat is 3,54,258.93 ha. The various protected areas are disconnected from each other and are under heavy biotic pressure. This has resulted in Human animal conflicts as well as unwelcome behavior from the wild elephants. The Governments have tried to improve the habitat conditions by formulating management plans for the PAs. Need is felt to create Protected Areas in the adjoining nations having common international boundary with the area under study so that an international habitat of Protected areas can be formed for the benefit of elephant conservation.

Character cannot be developed in ease and quiet. Only through experience of trial and suffering can the soul be strengthened, ambition inspired, and success achieved.

Hellen Keller

SOME BACTERIAL DISEASE OF COLDWATER FISHES OF GARHWAL HIMALAYA

J. V. S. Rauthan, Geeta Rauthan and R. S. Bisht

The freshwater fish inhabiting the streams and rivers are in important source of protein rich food. Since these water bodies are used and exploited for a number of purposes their water is polluted by many environmental pollutants, which not only degrade the water quality, but adversely affect the clean water biota, promoting the growth of harmful bacteria, protozoans and metazoans. The intensification of fish culture also produces a number of problems, including the occurrence of fish diseases. Besides this poor sanitary conditions at many hatcheries diets also cause some diseases. The diseases have been one of the major checks in the development of aquaculture. Among these diseases certain bacterial, protozoans and metazoan diseases are responsible for heavy mortality of fishes. The paper summarizes the present state of knowledge on the bacterial diseases of coldwater fishes.

1. Ulcer disease: This disease primarily affects the brook trout, though brown and lake trout are also susceptible (Wolf 1938). As the name indicates, ulcer disease is characterized by the formation of open ulcers or sores on the body surface, which superficially resemble those furunculosis in several respects. A furunculosis lesion appears first as a blister or bladder like swelling under the skin, which eventually breaks through to the surface. It is filled with red pus like material composed mainly of blood, bacteria and disintegrated muscle fibres. Snieszko et.al. (1950) have shown that the disease caused by the bacterium *Hemophilus piscium* which appears as short, gram – negative non motile rods. They may occur singly in pairs or sometimes in short chains. The bacteria usually gain entrance where the epithelium is injured. Wolf (1947) suggested that ulcer disease can be controlled by adding sulfamerazine to the food, as in the case of furunculosis. The addition of 3 grams of drug per pound of food gave satisfactory results. Snieszko (1952) proposed that the antibiotics terramycin and chloromycetin help in the effective control of the disease. After the first appearance of the disease the treatment should be started as soon as possible and continued until the disease is brought under control.

2. Bacterial Gill disease : It is common disease of fingerling trout and salmon in most of the hatcheries. The disease is caused by infection with bacteria that occur in the form of long thread like filaments on the surface of the gills. Such filaments may attain a length of 100 microns or more and are composed of long rod shaped bacteria jointed end to end. In the early stages of the disease, the gills are swollen and congested and consequently appear a deeper red than usual. Thereafter, the gill filaments become more or less completely fused, their tips becoming enlarged and lighter in colour. Among others the most well marked symptom is the greatly increased mucus secretion by the gills. The increased secretion of mucus accompanied by thickening and fusion of gill filaments seriously interfere with the circulation of water over the gills. The muscles may become filled with debris and sand grains which further obstruct the flow of water. The thickening of the epithelium also affects the free exchange of gases between the water and the blood since the water and blood are

separated by many cells instead of two there layers as in the normal gill. Wolf (1945) stated that this disease is caused by a deficiency of pantothenic acid in the diet, the presence of characteristic bacteria being purely accidental. When the disease first appears the fish should be dipped in 1:2000 solution of copper sulphate for one minute and the quickly transferred to running water.

3. Peduncle disease : It was reported by Davis (1946) among fingerling rainbow trout. Material scrapped from the surface of the caudal peduncle contained a nearly pure culture of nonmotile, slender, rod shaped bacteria 3 to 5 microns large, which are believed to the cause of the disease. The bacteria apparently first gain entrance through the epidermis of the adipose fin and mutilply rapidly in the dermis. As a result of infection the adipose fin in turned white along its outer edge. Later, this discolouration spreads over the caudal peduncle. The entire peduncle becomes a dirty white, but by that time the adipose fin is disappeared and the sin on the dorsal side of the peduncle is broken down, exposing the muscle underneath. According to Davis (1956) the spread of disease can be prevented by destroying all fish which, show any signs of infection. All contaminated troughs, pond and utensils should also be disinfected.

4. Furunculosis : This disease affects the various species of salmonid fishes of the trouts, the brown and brook trouts are more suscepitble. Furunculosis derives, its name from the superficial similarity between the furunculosis lesions and human boils and furuncles. The disease is caused by the organism. *Bacterium salmonicida* first described by Emmerich and Weibel (1894). It is a rod shaped organism about 2 to 3 microns long with rounded ends. The bacteria occur in the blood of infected fish. The symptoms of the disease include the presence of open sores on the body. Furunculosis lesions develop near the base of the dorsal or pelvic fins, especially on fingerlings. The lesions are visible to the naked eye as minute and rod shaped in subcutaneous tissue. They contain large numbers of causative bacteria, which cause disintegration of tissues. As a result a swellings is formed which contains a deep red, pus like material consisting of bacteria, blood and broken down muscle fibres. Since Furunculosis is a blood disease, it is not easy to control. Sometimes the disease appears among brood fish during the spawning season, although fish may be free from the disease for the rest of the year. Gutshell (1947) proposed that the most successful treatment of furnunculosis is the administration of sulfamerazine in the food for at least ten days to three weeks.

5. Fin rot : Fin rot is a prevalent at many trout hatcheries. Singh et.al. (1983) reported this disease from Kaldyani trout hatchery. Usually the infection appears first in the dorsal fin and later it may spread to other fins. The most common form of fin rot is a bacterial infection which appears as a more or less distinct white line along the outer margin of the fin. This white line is the result of a rapid proliferation of the epithelial cells and consequent thickening of the epithelium. This hyperplasia of the epithelium is the result of the reaction of the tissues to the presence of rod shaped bacteria which are believed to be the cause of the disease. These bacteria may be found in large numbers in diseased fins and may also invade

the connective tissues. As the disease advances the fin rays are exposed and eventually become frayed and broken. The severity of fin rot varies greatly in different localities and we have little information regarding the factors that tend to bring out an outbreak of the disease. As in many other trout diseases overcrowding may be an important contributing factors. In some cases injury to the fins by the parasite *Gyrodactylus* might make them more susceptible to infection. In early stages the disease may be controlled by dipping the fish for two minutes in a 1 : 2000 solution of copper sulphate. In the treatment of fin root, Eicher (1947) found that malawhite green gave better results than copper sulphate.

5. Columnaries disease : It was first described by Divis (1922) as the cause of serious mortalities among buffalo fishes and crappies, though black basses, channel cat fishes, and blue gills are also affected. The disease is caused by a myxobacterium named *cytophyga columnaris*. They are long rod-shaped organisms measuring about 0.5 by 5 to 12 microns. In pure culture the organism may take the form of long filaments branched cells and rings in addition to the long-slender rods. The disease first appears as a grayish white spot on the head, gills, fins or body, which is usually surrounded by a zone with a distinct reddish tingle. The disease attack fish at comparatively higher temperature and the lesions first develops at the site of an injury. At lower temperature, the danger of infection is much less and the diseases develops more slowly. On the first appearance of disease, the fish should be dipped in a 1:2000 solution of copper sulphate for about 2 minutes. In advanced stages of disease two or three dippings at 12-24 hours intervals, may be necessary.

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विश्व से विलुप्त होता बाघ

डॉ० राखी उपाध्याय*

दुनिया भर में कभी बाघ की 8 प्रजातियाँ थीं जिनमें से 3 प्रजातियाँ तो पूरी तरह विलुप्त हो चुकी हैं। वर्ष 1900 में दुनिया में बाघों की संख्या 80 हजार से एक लाख के बीच थी, लेकिन 2003-2004 तक यह संख्या घट कर मात्र 7 हजार रह गई। 1960 तक बाघों का खूब शिकार होता रहा, लेकिन अब सरकारी रोक (Wild Life Act) के चलते चोरी छिपे बाघों का शिकार होता है। बाघों का सबसे बड़ा दुश्मन चीन है। पहले बाघों की सबसे अधिक प्रजातियाँ चीन में थीं, लेकिन अब यह घट कर केवल 5 ही रह गयी हैं। चीन में पिछले 1 हजार साल में बाघों की हड्डियों से बनी दवाइयाँ ही सर्वाधिक लोकप्रिय हैं। चीन, ताइवान, लाओस तथा कोरिया में बाघ की हड्डियों से निर्मित दवाइयों के अनेक उद्योग हैं, चीन में टाइगर फार्म हैं जहाँ 5 हजार तक बाघ मौजूद हैं, वैसे चीन में वन्य बाघ तो केवल 30 ही हैं।

चीन में 500 ग्राम बाघ की हडडी की कीमत चीनी मुद्रा में 40 से 50 हजार तक है। भारतीय मुद्रा में एक बाघ की कीमत लगभग 50,000 रुपये है। बाघों की हडडी से हर प्रकार की बीमारी की दवा बनती है जैसे— मलेरिया, टाइफाइड, खून की कमी, वात रोग आदि दौत दर्द होने पर बाघ के मूँछों के बाल उबालकर गरारा करना अच्छा होता है। ऐसे ही बाघ के हर अंग—प्रत्यंग से कोई न कोई दवा बनती है। दवा बनाने के लिए चीन को साल में 300 बाघों की जरूरत होती है। चीन में 24 ऐसी दवा बनाने वाली कम्पनियाँ हैं जो बाघ की हड्डियों तथा दौतों से निर्मित दवाओं को बाहरी देशों में निर्यात करती हैं। दक्षिण कोरिया साल में 700 किलो बाघ की हडडी खरीदता है। चीन की इस बाघ हत्या से घबरा कर 1993 में संयुक्त राष्ट्र संघ ने उस पर एक निषेधाज्ञा लागू की थी, उस निषेधाज्ञा को अब चीन हटाने की माँग कर रहा है, पर संयुक्त राष्ट्र उसके प्रस्ताव को हटाने को राजी नहीं है। दुनिया के 171 देशों ने इस प्रस्ताव का समर्थन किया। अतः विलुप्तप्रायः प्राणियों से संबंधित किसी भी प्रकार के व्यापार का इसमें विरोध है। बाघ से संबंधित इस विरोध में भारत का नाम सर्वोपरि है और चीन के लिए भारत की अनुमति पाना बहुत आवश्यक है क्योंकि इस समय पूरी दुनिया में वन्य बाघों की सर्वाधिक संख्या भारत में ही है। भारत अवश्य ही सम्पूर्ण अंतर्राष्ट्रीय समुदाय का ध्यान इस ओर आकर्षित करना चाहेगा कि चीन को बाघ के अंगों के व्यापार की कोई अनुमति न दी जाए। भारत को विश्वास है कि यह अनुमति बाघ के अंगों की तस्करी को बढ़ावा देगी। जिसका प्रभाव भारतीय वन्य बाघों पर भी पड़ेगा।

इस समय उत्तराखण्ड के कार्बेट नेशनल पार्क में दुनिया के किसी भी नेशनल पार्क से ज्यादा बाघ हैं। वाइल्ड लाइफ इंस्टीट्यूट ऑफ इंडिया ने 2007 में बाघों का जो सर्वे करा था, उसके अनुसार मध्य प्रदेश में 276, महाराष्ट्र में 102, राजस्थान में 32, छत्तीसगढ़ में 26 बाघ थे। बाघ खाली संरक्षित जंगलों में नहीं, बल्कि जून में होते हैं। कार्बेट पार्क के बल्फर जून में 30 बाघ हैं। वन्य जीव विशेषज्ञों का कहना है कि एक बाघिन को रहने के लिए 5 से 10 वर्ग कि०मी० की जरूरत होती है जबकि बाघ को 10 से 20 वर्ग कि०मी० की। लेकिन कार्बेट नेशनल पार्क जैसे संरक्षित वन में जहाँ बाघों के लिए अनेक शिकार उपलब्ध है वहीं यह जगह कुछ कम हो सकती है। वर्ष 2005 में वन विभाग द्वारा बाघों की जो गणना की गई थी उसके अनुसार उत्तराखण्ड में 241 बाघ जिनमें 76 संरक्षित क्षेत्र के बाहर थे, बाकी संरक्षित क्षेत्र के अन्दर थे इस गणना के अनुसार तब कार्बेट नेशनल पार्क में 92 बाघ थे। वर्ष 1981 में सुन्दरवन (पश्चिम बंगाल) को यूनेस्को ने रिजर्व एरिया घोषित किया था यहाँ बाघ को आज सम्पूर्ण संरक्षण मिला रहा है। भारत के संरक्षित वनों में बाघों की संख्या 1500 के आस-पास है।

पृथ्वी पर से अब तक अनेक पशु-पक्षियों की प्रजातियाँ विलुप्त हो चुकी हैं तो कई वन्य प्रजातियाँ विलुप्त होने की कगार पर हैं जिनमें से बाघ भी एक है।

इस बुद्धिमान, वीर, साहसी जीव के बारे में जिम कार्बेट ने कहा था कि अगर भारत से बाघ विलुप्त हो जाए तो यह इस देश के लिए एक ऐसी क्षति होगी जिसकी कोई भरपाई नहीं हो सकती। आखिर मानव भी तो इस धरती का एक समझदार जीव है इसलिए सबसे बुद्धिमान होने के कारण उसका कर्तव्य है कि वह अन्य प्राणियों को, जो विलुप्त होने के कगार पर हैं उन्हें बचाएँ। बाघ, शेर और चीता बिल्ली परिवार के प्राणी है। बाघ व शेर इस परिवार के सबसे विशालकाय प्राणी है इनमें बाघ का आकार सबसे बड़ा होता है जो 3 फुट पूँछ के साथ 12 फुट तक लम्बा हो सकता है और वजन 300 कि०ग्रा० तक होता है। बाघ स्तनपायी और माँसाहारी जानवर है। यह ऐसा जीव है जो पथरीले पहाड़, बर्फाले पर्वत, जंगल, ऊँचे-ऊँचे घास के मैदान आदि सभी जगहों पर रह सकता और रहता भी है। बाघ अफ्रीका में नहीं पाया जाता है वहाँ शेर मिलते हैं। बाघ को बहुत गरमी पसंद नहीं इसलिए रेगिस्तान में वह नहीं होता है। दुनिया भर में कभी बाघ की 8 प्रजातियाँ

थी, जिनमें से 3 प्रजातियाँ तो पूरी तरह से विलुप्त है 5 जो हैं उनमें से भी कुछ समाप्ति की राह पर है। दक्षिण चीन में 'एमोच टाइगर' नामक जो प्रजाति बची है उसके केवल 3 ही बाघ शेष हैं, इस प्रजाति के बाघ चीन, उत्तर कोरिया, और एशिया के कुछ दूसरे देशों में भी मिलते हैं इनको 'साइबेरियन टाइगर' भी कहते हैं। इनकी संख्या 350 से 400 के बीच है। भारत में 1901-02 में रायल बंगाल टाइगर की संख्या लगभग 40,000 थी। परन्तु 1982 में यह संख्या 2500 हो गई, 2007-08 में यह संख्या एक हजार के आस-पास है। इस प्रजाति का बाघ चीन में 30 से 40, बंगलादेश में 360, भूटान में 80, म्यांमार में 220, नेपाल में 97 हैं, इन्डोचायनीज़ प्रजाति के 1800 बाघ कंबोडिया, लाओस, मलेशिया, म्यांमार, थाइलैंड और वियतनाम में मिलते हैं जिनकी संख्या 400 के करीब है।

'बालि' प्रजाति के बाघों की विलुप्ति की घोषणा 1940 में की गई थी तो 1970 में कैस्पियन टाइगर की, जो अफगानिस्तान, ईरान, चीन, तुर्किस्तान में पाये जाते हैं। जावा प्रजाति के बाघ 1980 में विलुप्त हो गए। सफेद बाघ कोई अलग प्रजाति नहीं है। यह एक तरह से रॉयल बंगाल टाइगर की ही नस्ल है जो खास तरह के जिन के प्रभाव के चलते सफेद होते हैं। मध्य भारत में सफेद बाघ पाये जाते हैं।

बाघ में सूँघने की शक्ति कम होती है लेकिन सुनने की शक्ति बहुत तेज होती है। बिल्ली परिवार का चीता पतंगों के खड़कने की आवाज तक सुन लेता है। बाघ तैरने में कुशल होता है। बाढ़ की उफनती बड़ी-बड़ी नदियाँ भी, बाघ तैर कर पार कर लेता है। बिल्ली परिवार के होते हुए भी बाघ और शेर दोनों ही पेड़ पर चढ़ने वाले प्राणी नहीं हैं। इसकी चमड़ी बहुत ही सुन्दर और आकर्षक होती है। पीले रंग पर काले रंग के गोल-गोल धब्बे होते हैं। बाघ बहुत शक्तिशाली जानवर है वह अपने वजन से 2-3 गुना वजन के जानवर को शिकार करके उसे खींचकर ले जा सकता है। एक बार में 35 कि०ग्रा० तक माँस खा लेता है। बाघ अपने शिकार को कई दिनों तक रुक-रुक खाता रहता है। इसलिए वह शिकार छोड़कर दूर नहीं जाता है। बाघ के शिकार का तरीका है कि छोटे जानवरों के तो वह ऊपर चढ़ जाता है जैसे- हिरण इत्यादि। परन्तु बड़े जानवरों को वह नीचे से गला दबोच कर शिकार करता है और उन्हें तब तक नहीं छोड़ता जब तक वह मर न जाए। जैसे- जंगल भैंसे, नील गाय, इत्यादि।

क्षति आशंकित पेड़ पौधों व वन्य प्राणियों की संख्या में लगातार कमी होने के कारण देश के वन्य जीवों के संरक्षण के लिए कदम उठाये गये हैं। इनके संरक्षण के लिए स्वयंसेवी एवं सरकारी संस्थाओं की स्थापना की गई है। वन्य जीवों में बाघ के संरक्षण के लिए उच्च प्राथमिकता दी गई है। सरकार ने इसके लिए अलग से पर्यावरण एवं वन मंत्रालय खोला गया है। बाघों की लिए भी अलग से संरक्षण क्षेत्र बनाये गये, जिसमें उनकी प्राकृतिक आवासों की सुरक्षा, नेशनल पार्क, पशु विहार तथा बायोस्फीयर रिजर्व का रख-रखाव एवं कानून द्वारा संरक्षण प्रदान करना है। भारत में बाघों की गिरती संख्या पर विचार के बाद Indian Board for World Life (IBWL) ने सन् 1973 में प्रोजेक्ट टाइगर शुरू करने की घोषणा की। इस परियोजना के अन्तर्गत भारत के विभिन्न राज्यों में अब तक 39 टाइगर रिजर्व स्थापित किए गए हैं। इस परियोजना के फलस्वरूप बाघों की संख्या में वृद्धि हुई है। टाइगर रिजर्व एरिया घोषित होने से उस क्षेत्र में अन्य वन्य प्राणियों को भी संरक्षण मिला। जो विलुप्ता के कगार पर थे। लगातार बाघों की संख्या विश्व में भारत के साथ-साथ कम होती गई। पिछले कुछ वर्षों में इनकी संख्या 1972 में 1827 बाघ, 1979 में 3015, 1984 में 4005, 1993 में 3750, 1997 में 3508, 2002 में 3642, 2005 में 2000 तक सीमित रह गई।

भारत में चल रहे प्रोजेक्ट टाइगर निम्नलिखित राज्यों में हैं—

क्रम.	वर्ष	टाइगर रिजर्व का नाम	राज्य	कुल क्षेत्रफल (वर्ग कि०मी०)
1.	19	कार्बेट	उत्तराखण्ड	1316
2.	73	बांदीपुर	कर्नाटक	866
3.	1973	कान्हा	मध्य प्रदेश	1945
4.	1973	मानस	आसाम	2846
5.	1973	मेलघाट	महाराष्ट्र	1677
6.	1973	पालामाऊ	बिहार	1026

7.	1973	रणथम्भोर	राजस्थान	1334
8.	1973	सिमलीपाल	उड़ीसा	1334
9.	1973	सुन्दरवन	पश्चिम बंगाल	2585
10.	1973	पेरियार	केरल	777
11.	1978	सरिस्का	राजस्थान	866
12.	1978	बुक्सा	पश्चिम बंगाल	759
13.	1982	इन्द्रावती	मध्य प्रदेश	2799
14.	1982	नागार्जुनसागर	आन्ध्र प्रदेश	3568
15.	1982	नामदाफा	अरुणाचल प्रदेश	1985
16.	1982	दुधवा	उत्तर प्रदेश	811
17.	1987	कलाकढ़ मुण्डनथरेई	तमिलनाडु	800
18.	1988	वाल्मिकी	बिहार	840
19.	1989	पेंच	मध्य प्रदेश	758
20.	1989	तोडावा अंधेरी	महाराष्ट्र	620
21.	1992	बाँधवगढ़	मध्य प्रदेश	1162
22.	1993	पन्ना	मध्य प्रदेश	542
23.	1994	दम्फा	मिजोरम	500
24.	1994	भद्र	कर्नाटक	492
25.	1998	पेंच	महाराष्ट्र	257
26.	1998	पाखूर्ई	अरुणाचलप्रदेश	862
27.	1999	वोरी, सतपुड़ा	मध्य प्रदेश	1486
28.	1999	नागरहोल	कर्नाटक	643
29.	1999	नामीरी	आसाम	344
30.	—	डुन्देली-अंशी	कर्नाटक	—
31.	—	अचानकमार	छत्तीसगढ़	—
32.	—	उदंती सीतानदी	छत्तीसगढ़	—
33.	—	परम्बीकलम	केरला	—
34.	2008-9	सन्जय डुबरी (रतापानी)	मध्य प्रदेश	674
35.	2008-9	सतकोसिया (सूनाबेड़ी)	उड़ीसा	856

36	2008-9	सहयाद्री	महाराष्ट्र	569
37	2007-8	अनामलाई	तमिलनाडू	959
38	2007-8	मदुमलाई	तमिलनाडू	321
39	2006-7	काजीरंगा	आसाम	859

आभार-अभिव्यक्ति – इस शोध-पत्र को तैयार करने में डॉ० जे०वी०एस० रौथान, जन्तु विज्ञान विभाग, डी०ए०वी० (पी०जी०) कॉलेज, देहरादून तथा ज्यूलॉजिकल सर्वे ऑफ इण्डिया के द्वारा प्राप्त आँकड़ों तथा पुस्तकालय के सहयोग के लिए मैं आभार अभिव्यक्त करती हूँ।

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Love and kindness are never wasted. They always make a difference. They bless the one who receives them, and they bless you, the giver.

Barbara De Angelis

Study on migration of elephant from Keonjhar division to Karanjia division, Orissa, India

Sandeep ranjan mishra¹, Debi prasad sahu² & Anup kumar Nayak³.

Introduction

Migration of Elephants is essential for Gene flow between populations. This keeps the Body fit and agile. Migration paths, called the corridors linking two forest Patches, used to be well defined. Some portions of such well defined corridors have degraded to mere passage where depredation incidents are severe. Migrating elephants are directed by memory and guidance by seniors in the herd. Therefore older elephants must remain alive and known routes must not change in their habitat-quality as reserve of foods, water and shelter.

Elephants are intelligent animals learning from other herd members the distribution of food and water sources. Elephants develop an intimate knowledge of the resources available in a fixed area (called the home range) of their environment which can sustain them over different seasons and many years. A single herd or adult male Asian elephant requires a home range area between 150 and 600 sq km. Where resources are poor due to habitat degradation or alteration to agriculture home range are typically even larger. However due to human interference and habitat loss elephants are confined to smaller areas leading to overcrowding which result conflicts. Movement over a length of 250 km from Lakhari in Orissa to Andhra Pradesh is known in this region. Home ranges in Excess of 600 km have been recorded for females in Nilgiris in south India. In Rajaji National Park in North India, female home ranges of 184-326 km and male home ranges of 188-407 km have been recorded.

Movement of animals in general and elephants in particular has been studied and reported by authors like Allaway (1979), Buechner *et al.*, (1963), Douglas-Hamilton (1972), Easa (1992), Eisenberg and Lockhart (1972), Haynes (1949), Johnsingh (1992), Joshua and Johnsingh (1995), Khan (1967), Leuthold (1977), McKay (1990), McNab (1963), Olivier (1978a), Peters (1983), Sukumar (1989 and Wesley Sunderraj *et al.*, (1995). It was found that elephants from Joda and Badbil of Keonjhar Division frequently migrated to Karanjia Division for the last three years. So present study aims to document migration route of elephants from Keonjhar division to Karanjia Division.

Study Area

The Similipal-Kuldiha-Hadgarh Elephant Reserve in the State of Orissa is popularly known as the Mayurbhanj Elephant Reserve. The Reserve was notified by the state Government of Orissa Vide notification o 15806, dt-29 september 2001 and revised Vide no.18639/dt-8 of Novemeber 2001 of Forest and Environment Department. Both Keonjhar and Karanjia Division comes under the Mayurbhanj Elephant Reserve.

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KEONJHAR DIVISION

The boundary proceeds along the boundary of Baula RF, crosses the Salandi River near Hadgarh. Then it proceeds along the road Hadgarh and encircles Baula RF along south west, south and north-east boundary upto the junction of Mayurbhanj-Keonjhar District boundary near Mirigichua village. Then the boundary proceeds in a westerly direction along the districts boundary of Mayurbhanja –Keonjhar districts upto the crossing of Taradiha nalla Sarangi Village.

KARANJIA DIVISION:

The Reserve starts from Taradiha Nala at its confluence with Baitarani River near Sarangi village. Then it proceeds along upstream of river Baitarani (enclosing within it the Santoshpur RF of Keonjhar Division) upto Dalki Sahi Village, i.e., the boundary of Thakurmunda Range of Karanjia Division (which is also the District boundary between Mayurbhanj and Keonjhar), then follows the district boundary in a northerly direction upto West Deo River near Mandua village, and then proceeds upstream along West Deo River upto its crossing-point with Karanjia-Thakurmunda road. Then the boundary moves along the road upto Karanjia, then upto Singada chhak, touches NH-6, then along NH-6 upto the crossing of Nanjura nalla, from there it proceeds north-west direction along Nanjura nalla upto the confluence of Khairi nalla, then proceeds along the downstream of Khairi nalla upto Panposi village. Then the boundary runs upstream in north direction along Dubajora nala upto state boundary of Bihar-Orissa. Then the boundary of the Elephant Reserve proceeds along the Bihar-Orissa state boundary along eastern and northern direction upto north of Manbir Reserved Forest near village Manbir. Then it moves in eastern direction and encircles Manbir RF and Budheirana RF upto Edelbeda Village. Then the boundary of the Elephant Reserve runs in an easterly direction along the boundary of the Badampahar Range upto Kanhu River near Kaduani village and further runs upstream along the Kanhu River upto the confluence of Pokharia Nala in the north of Pokharia Village, and then runs upstream of Pokharia Nala upto boundary of Badampahar RF near Kasiabeda Village. Then the boundary runs along the north of Badampahar RF in an easterly direction upto Badampahar Forest Range Hd.Qr., then it proceeds upto Badampahar Railway Station and moves in a northerly direction along the Badmpahar-Tatanagar Railway Line upto crossing of Barhai nalla near Bahalda Road railway station. Then the boundary proceeds westward along the downstream of Barhai nala upto Dharamdihi Village and then moves in north-west direction along the ridges of Churia hill, Sadam hill and Jerai RF, where it touches Bihar-Orissa State border. Then the boundary runs north-eastward along the Bihar-Orissa State border near Pandupani village upto the boundary of Baripada Division near Satabankaka hill top

Methodology

Indirect observation:-

Foot prints, fresh dung heaps and damages to vegetation during feeding are the signs that reveal movement paths used by elephants. From these signs the size of the elephants, the herd composition as adult, young and calves can be assessed to some extent.

Direct observation:-

Direct observation is ideal for species identification and behavioural studies. It may take some time or few days to assess the original habitat of the group of Elephants and their migration routes and whether they are going to stay for some days in a particular area for food, water or shelter. Normally during the day time the elephants do not move and take shelter in a place where there is some tree cover. The approach should not disturb the elephants during day time and to facilitate their passage in the direction that they would normally take. The observation was made with the aid of binocular.



Fig 1: Location map of the study area

Result and Discussion:-

In the year 2009 Elephant migrated from Keonjhar to Karnajia via Baitrani river near Mahadev Deuli village. In The Year 2011 they crossed the Baitraini river Jamunalia village destroying the solar fencing constructed by the Govt of Orissa Under Elephant Management Action Plan. It has been observed that the same herd of elephant migrating from keonjhar to karanjia Division since last three years but the present study documented their migration route in the year 2009 and 2011. Detail about the migration route of elephants of Keonjhar Division to Karanjia Division are Given below.

ELEPHANT MOVEMENT IN KARANJIA DIVISION YEAR 2009.

<u>Village/Reserve Forest Name</u>	<u>GPS Location</u>
1. Mahadev Deuli near Baitrani River	21 48 32.1 - 85 49 13.3
2. Mahadev deuli	21 48 49.2- 85 49 43.4
3. Ghosada Reserve Forest	21 49 49.0-85 50 24.5
4. Ghagi Reserve Forest	21 50 08.2-85 51 50.2
5. Saranga Gada Reserve Forest	21 49 44.5-85 53 17.6
6. Badbil Reserve Forest	21 50 26.5-85 53 56.7
7. Kasia Reserve Forest	21 51 17.1-85 55 08.4
8. Kasia village	21 51 38.5-85 55 16.2
9. Pokharia Reserve Forest	21 51 32.6-85 55 40.8
10. Mata Reserve Forest	21 51 48.5 -85 56 53.6
11. Dumbi Sahi Reserve Forest	21 51 21.8-85 5 32.4
12. Dumbi Sahi Village	21 51 86.9-85 56 32.2
13. Badadeuli Reserve Forest	21 47 35.7- 85 54 38.9
14. Nuagon Reserve Forest	21 48 01.3-85 55 34.7
15. Andharjhari Reserve Forest	21 47 26.6-85 57 03.2

ELEPHANT MOVEMENT IN KARANJIA DIVISION YEAR 2011

1.07.08.2011- Elephant Herd entered From Keonjhar through Jamnalia and halted at Panideuli RF of karanjia Division.

2. Movement towards Jamti RF
3. Ghagi RF
4. Fulguntha RF
5. Badabil RF
6. Sarangada RF
7. Badsorai
8. Nuagon RF
9. BadaDeuli RF
10. SanaDeuli R

Elephants frequently migrated from Joda and Badbil of Keonjhar Division to Karanjia Division due to several reasons like developmental activities going on in Joda and Badbil mining area, habitat destruction, scarcity of food and water. Detail account of the causes of migration is given below.

Anthropogenic Pressures on habitat

In Keonjhar portion of the Reserve there are 93 villages. The decennial increase of Population is @ 20% during 1991-2001. The eco-stress is more on account that the people of these villages depend fully on the forests for their livelihood and cause extensive damage to the habitat of elephants. The villages lie inside the elephant reserve and it becomes difficult to control trespassing into the forests. The encroachment by the people residing along the periphery are rampant. Cultivation of different crops and vegetables are resorted by encroaching the forests in the periphery and also inside the forests. The illicit cutting of trees

is rampant due to heavy demand of timber and firewood in the nearby urban centres.

Depleted forest cover and loss of habitat quality:

Except Similipal all others forests of this region is being depleted year after year, more so with corridors connecting Kuldiha to hadgarh and Hadgarh to Similipal.

Mining:

The major damage to the elephant habitat is due to the large scale mining operations carried out to extract chrome iron ore in the Hadgarh area of Keonjhar. The area has been leased out to three companies namely ,M/S Orissa mining Corporation LTD(OMC),M/S Indian Metal Ferro Alloys LTD(IMFA),M/s Ferro Alloys Corporation Ltd(FACOR). The leased area to the above three companies is 24.44 sqkm(swain 2000),but the impact zone is much higher than that in the form of pollution and biotic interference of the people engaged in mining activities. The underground and open cast mining is carried out with the help of huge machineries. Owing to the presence of machineries g and people the habitat has been degraded. Elephants still come to these mining areas often as evidenced from their dung. This indicates that the present area of mining operation was apart of the former habitat.

Besides this sufficient water, Food and suitable habitat of Karanjia Division attracts elephant for migration from Keonjhar.

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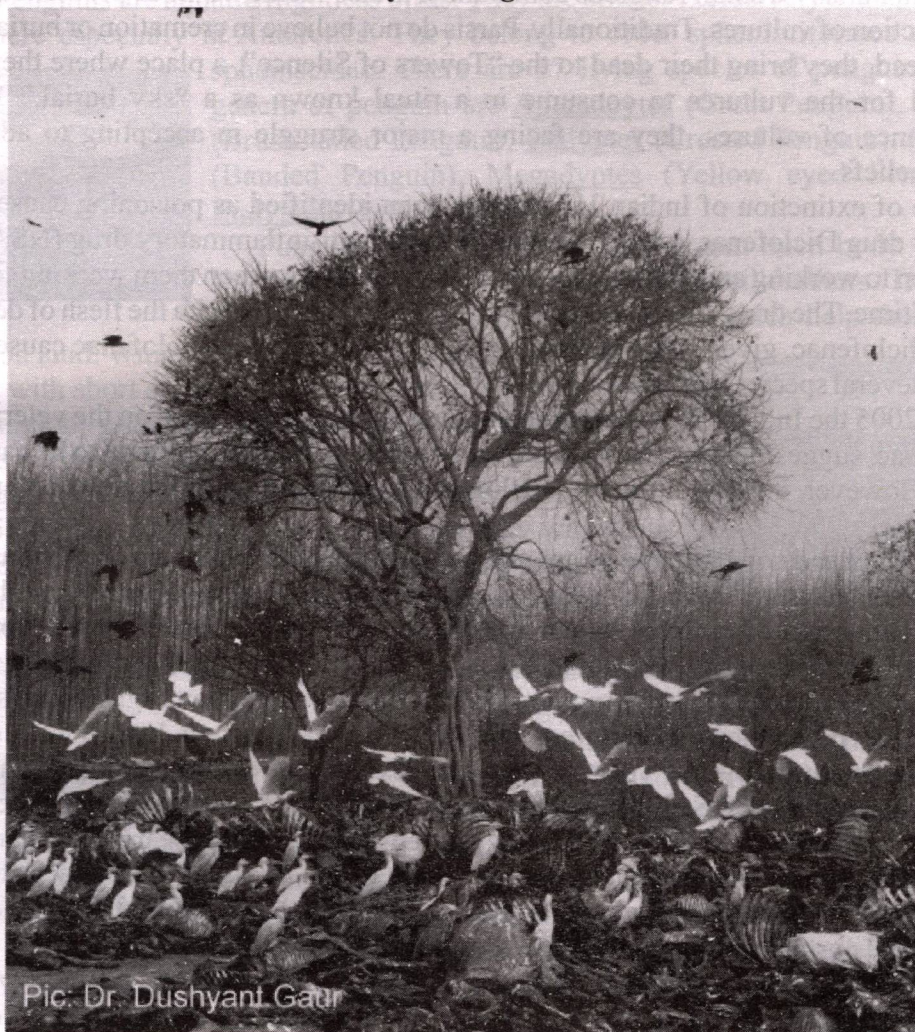
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Truth is a shining goddess, always veiled, always distant, never wholly approachable, but worthy of all the devotion of which the human spirit is capable.

Thomas Daly

The Scavengers

Dr. Dushyant Singh Gaur MD



Pic: Dr. Dushyant Gaur

Vultures, the traditional scavengers, were once the most common raptor on the Indian subcontinent. They are quite unattractive looking, massive in size and clumsy, with their featherless gray heads, their pronounced brows, their oversized blunt beaks capable of splintering bones and their naked faces usually buried in rotting carcasses. They vomit when threatened and reek of death. However, they are a very crucial part of eco-system, contributing to the decomposition of dead animals, especially in countries like India, where due to hot and humid climatic conditions, dead carcasses start rotting if not consumed by these birds.

Some experts estimate that there has been a 98% drop in the population of the two most

common species of vultures in just the last 10-15 years, mainly in India and Nepal, based on surveys in one of the country's leading game preserves.

In Mumbai, Parsis – a small religious community, is also facing a unique problem due to the near-extinction of vultures. Traditionally, Parsis do not believe in cremation or burial of their dead. Instead, they bring their dead to the “Towers of Silence”, a place where they lay out their dead for the vultures to consume in a ritual known as a “sky burial.” With the disappearance of vultures, they are facing a major struggle in accepting to adapt their religious beliefs.

The cause of extinction of Indian Vulture has been identified as poisoning caused by the veterinary drug Diclofenac, which is a non-steroidal anti-inflammatory drug (NSAID) and when given to working animals it can reduce joint pain and so keep them working for longer periods of time. The drug is believed to be swallowed by vultures with the flesh of dead cattle in which diclofenac, given in the last days of life, is accumulated. Diclofenac causes kidney failure in several species of Vultures.

In March 2005 the Indian Government announced its support for a ban on the veterinary use of diclofenac, suggesting use of meloxicam in its place, as it has been found to be harmless to vultures. However, in spite of the ban, diclofenac is still being used for animals throughout India.

Everyday thousands of cattle die or are slaughtered and their carcasses or carrions are just dumped in secluded spots and fields for consumption by scavengers. However, with the near complete extinction of vultures, other birds have come in the fore-front as “opportunistic scavengers” – like the egrets, crows and kites.

Attempts are being made by government as well as non-government organizations (NGOs) to revive the population of vultures, but since these birds are long-lived and reach reproductive maturity by five years of age, decades may pass before their population may show significant rise. S M Satheesan of the World Wide Fund for nature has proposed a chain of “vulture restaurants” to keep the soaring scavengers from disappearing altogether. This will basically be enclosures open at the top where clean carcasses free of diclofenac and pesticides will be kept for these birds to feed on. Today, there is need to be pro-active and implement all possible measures to revive these birds from the brink of extinction.

(The Author is Professor and Head of Pathology Dept., at Himalayan Institute of Medical Sciences, Dehradun. He is a passionate wildlife photographer and enthusiastic nature conservationist)

About the Picture: Egrets, kites and crows have become the frontline scavengers due to drastic fall in vulture population. This picture taken near Upper Ganga Canal shows rotting cattle carcasses, thrown carelessly in a secluded spot amidst trees, being fed by these birds.

The Penguins

Lalit Gupta*S.N. Khattri**

Penguins are aquatic flightless birds. They are almost exclusively found in southern hemisphere especially in Antarctica. They belong to order sphenisciformes and family spheniscidae. There are 17 living species of penguins. Modern genera of penguin are Aptendoytes (Great Penguin), Pygoscelis (Brush tailed Penguin), Eudyptes (Crested Penguin), Spheniscus (Banded Penguin), Megadyptes (Yellow eyed Penguin) and Eudyptula (Little Penguin).



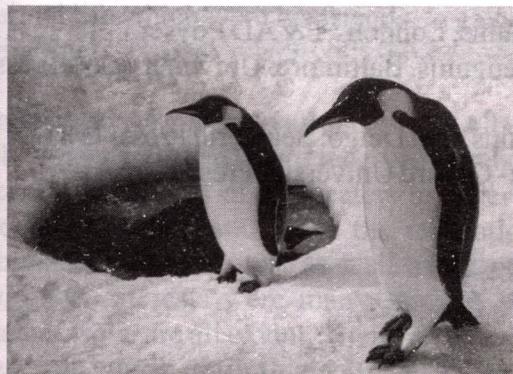
Penguins have a fusiform and stream lined body. The tail is short and wedge shaped bearing 14-18 tail feathers. The legs and webbed feet are set far back on body which help them to stand upright on land. Wings are modified into paddle like flippers covered with short scale like feathers. There is a layer of air within smooth plumage which ensures buoyancy and also insulates the bird in cold water.

Penguins eat krill, squids and fishes. They mostly feed within 50-60 feet of surface. They catch the prey with their bills and swallow it whole. They have a spiny tongue and powerful jaws to hold the slippery prey. Penguins go through annual fasting

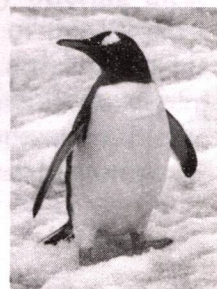


periods during breeding season & moulting.

Penguins normally attain 6-12 km/h during diving, though they can attain a maximum speed of 27km/h. Penguins waddle on feet or slide on their bellies (*tobogganing*). They can also jump on feet.



Penguins can drink salt water because their supraorbital gland filters excess salt from blood. They mostly breed in large colonies ranging from hundred pairs to



thousands. They are monogamous and lay two eggs in a clutch. The eggs are smaller than any other bird when compared proportionally to the weight of parent. The shell is thick and yolk comprises 22-31% of egg.

Average life span of penguins is 15-20 ys. but this beautiful bird is now facing the danger for its existence because of following reasons.

- Water predators like seals, sharks & whales.
- Land predators like fox, snake, feral dogs, cats which prey on their eggs & chicks.

- Predatory birds like Antarctic skuas, sheath bills & giant petrels.
- Exploitation by human for eggs & meat.
- Exploitation for their skin, used for making caps & purses.
- Exploitation for their feathers, used for stuffing purpose.
- Oil spills & pesticides.
- Climatic changes like global warming. However, several programs are going on to conserve the penguins. At present all the species of penguins are protected from hunting & egg collecting by law. In 1959, 12 nations signed Antarctic treaty & reauthorized it in 1991 to protect Antarctica & preserve its biotic resources.

In 1973 CITES, an international treaty was developed to regulate trade in some wild life species including the penguins. In 1919 Tasmanian government claimed the Macquarie island a sanctuary & in 1924 Kerguelen islands of Antarctica was declared a national park. American Zoo and Aquarium Association (AZA) Wildlife Conservation Management Committee (WCMC) has developed a Species Survival Plan (SSP) for Humboldt penguins. Currently four sea world parks maintain emperor penguin, king penguin, macaroni penguin & Humboldt penguin species and also run their breeding programs.

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From the Archives of Cheetal

Corbett Museum

Uttar Pradesh has the distinction of establishing the first National Park in India, and JIM CORBETT, whose memory the Park commemorates, was amongst the early pioneers who first selected the region of the Ramganga Valley as the best site. To him, and to the other pioneers, our generation, and generations to come, are indebted for their vision and foresight.

As the Corbett National Park evokes the spirit of the wildness, and attracts thousands of visitors each year in an increasing stream, from all over the world, curiosity and interest are aroused about the life and works of the famed sportsman, naturalist and writer, and about the wild life of the areas where he wandered.

Corbett's modest cotage at Kaladhungi situated between haldwani and Ramnagar along the forest road where he also owned land property is the obvious choice for creating a museum for satisfying this hunger for knowledge and information, and the U.P. Government has taken the first big step in this direction by purchasing his house and getting it repaired.

To establish the Museum and furnish it with Corbett's trophies, the specimens of the bird and animal life which were his friends, to gather under one roof a vritable encyclopaedia of the wilderness, is a task which calls for the cooperation of everybody.

To this end we appeal to all sportsmen, all naturalists, forest officers and all men of goodwill who knew Corbett, have received letters and correspondence from him, or have in their possession tropies of man-eaters or other animals shot by him, to come to the aid of the Corbett Museum and make the realisation of this treat task possible by offering these trophies and mementos, as well as all other specimens of the wild life of this country, Corbett's interests were many, and his writings, in journals, in letters, articles and his manuscripts, are all extant. Their collection at one place is desirable. We reiterate the urgent need for your help in this noble endeavour, and request your liberal co-operation, Please address all your enquiries or offers to the Chief Wild Life Warden, Uttar Prdesh Lucknow.

All offers of trophies and mementos will be gratefully accepted.

R.C. SONI

Chief Conservator of Forests, U.P.

Sariska: A Lonely Sanctuary

MAJOR A. DAVID

A hundred-and-twenty-five miles from Delhi on the main Highway to Jaipur lies this beautiful, but little-known Sanctuary. 132 sq.miles of scrub-forest cradled in the lap of Aravalli ranges, it was the shooting preserve of the late Manaharaja of Alwar, when I first visited it in 1934. Wild life was overflowing it then, and we spotted 4 tigers, at 4 p.m. A visit last February was not so rewarding. The reason is mismanagement and wanton poaching. The way it is deteriorating and the stepmotherly treatment it is receiving from the authorities, soon will make it a sanctuary only in name.

The fabulous hunting lodge of the late Maharaja is neglected and almost in ruins. The Tourist department can turn it into a tourist attraction. Domestic cattle roam and graze freely inside the sanctuary which not only deprives the herbivora of its natural fodder, but is also a serious source of infection. This in itself will disturb the balance of nature in course of time. Besides, the inhabitants of the villages inside the sanctuary take toll of the wild animals. This cannot be stopped as long as they are permitted to live inside, in spite of all the supervision. The late Maharaja removed all the villages from inside the preserve and dealt summarily with any kind of poaching or vandalism. That put a stop to all unsporting activities.

Sariska has all the necessary requirements of a sanctuary. It has a perennial river flowing through its heart; high rocky mountains with caves where tigers and other large carnivora can safely and ideally breed, and thick, almost impenetrable, scrubby jungles, with grassy undergrowth for herbivora to live and feed. A 6 mile tar-road, also built by the late Maharaja, runs through the heart of the sanctuary up to the famous Hanuman temple. The sanctuary is approachable both from Delhi and Jaipur and there are two reasonably comfortable rest houses where one can put up for the night. The forest department has a jeep fitted with searchlight for night-spotlighting, which can be engaged on prior notice. They also tie live baits twice a week near the late Maharaja's shooting-tower, where flash-light photography is possible.

I feel it is about time that this sanctuary was raised to a National Park. A little more publicity would attract a large number of tourists, as being on the way to Jaipur and having such easy approaches, they can spend a delightful night there, watching the wild animals in their natural habitat.

During my last visit to Sariska, we made two trips through the sanctuary, one early in the evening and the second late at night. We saw quite a few sambar, blue bull, cheetal, some four-horned-deer and pig, plenty of jungle cats and a solitary caracal. The knowledgeable Range Officer informed us that there are about eighteen tigers and 6 leopards left in the sanctuary and that a family of 4 tigers regularly kills the live bait. It did that night, but we could not witness it. The entrance to the sanctuary is free but a nominal fee could be charged which could help in its maintenance.

Wildlife Conservation Week Celebrations 3-9 October 2011:

A Report

Dr. Dushyant Singh Gaur MD

India is blessed to be one of the 12 mega-biodiversity countries in the world. Its two wildlife "hot spots" — the eastern Himalayas and the Western Ghats — with only 2.4 per cent of the global land area, possess more than 45,000 plant species representing about 11 per cent of the world's biota. India's immense faunal diversity that is estimated to be over 81,000, represents about 6.5 per cent of world's fauna. As many as 29 endangered species like slow loris, brown bear, Himalayan lynx, clouded leopard, musk deer, ibex etc. are found in India.

Today, very few would know that efforts to conserve Indian wild life began in Dehradun. In the late fifties, when hunting was on the rise, the Maharaja of Nabha, Sir Pratap Singh Malvendra Bahadur, thought of the need to form a group that would fight for the cause of protection of the wild life in India. He took up the cudgels to protect wild life, particularly at a time when awareness on conservation was minimal. He constituted the Wild Life Preservation Society of India in 1959. Today, the Society is one of the oldest wildlife conservation societies of India which has remained alive since those early independence days, spreading the message of saving the flora and fauna, especially in the Himalayan foothills region. The members of the society have been holding various programs including seminars, talks and excursions at various platforms, targeting to sensitize and educate youngsters and to harness the youth power in order to strengthen the cause of wildlife conservation. The society's publication "Cheetal", a quarterly journal has been regularly published since 1959, drawing attention of the young and old alike.

Every year, Wildlife Week is celebrated by governments, environmentalists and activists to accelerate the awareness of wildlife conservation and environment among people.

This year, Wildlife Preservation Society of India observed Wildlife Conservation Week from 3 to 9 October 2011. It organized a Photography Exhibition at its headquarters - 7, Astley Hall, Rajpur Road, Dehradun. The exhibition showcased more than 40 wildlife pictures clicked by three photographers: Rajeev Mehta, who is a well known wildlife photographer who has also been an Honorary Wildlife Warden and is presently the Executive Vice President of the Society; Dr. Dushyant Singh Gaur, Head of Pathology Department at Himalayan Institute Hospital, Dehradun, who is a nature lover and recipient of First Prize for Nature Photography, awarded by the Governor Uttarakhand, during the 'Spring Festival 2010'; and Dr Prashant Singh, who is a dental surgeon with keen interest in Wildlife conservation. All of them are also life members of the Society.

This exhibition was inaugurated on 3rd October by Mr. A. S. Negi IFS (President WPSI) in presence of well known wildlife conservationist and scientist Mr. Vinod Rishi. The inauguration was attended by more than 40 students of Olympus High School, who came

along with their Principal Ms. Anuradha and Mr. Kumal Malla, Director, Olympus High. The event also attracted many other Indian as well as Foreign wildlife conservation enthusiasts, photographers and members of the media. Mr. A. S. Negi, while addressing the guests, expressed that the society aims to attract young and enthusiastic people to become its members and carry its mission of wildlife conservation forward. He said, the key to global wildlife conservation in the 21st century must be to craft solutions that meet the specific requirements of endangered species. Celebration of Wildlife Week also aimed to attract the attention of law-makers and help correct the flaws in the conservation efforts by the government. Mr. Vinod Rishi, who has dedicated major part of his life in wildlife conservation, enthralled the audience with several of his anecdotes of encounters with the tigers and other wild beasts.

WPSI also roped in several prominent schools to participate in a painting competition with "Nature & Wildlife Conservation" as its theme. The students participated in large number in three age group categories. On the final day, 9th October 2011, prize distribution was held where Welham Girls School won the running trophy for the competition, winning maximum prizes in various categories; Scholars' Home students came a close second. The event concluded with a vote of thanks by Mr. R. P. Kala, Honorary Secretary-WPSI, followed by snacks and refreshments.

Dr. Dushyant singh Gaur Professor of Himalayan Hospital trust Medical College joins WPSI as its Life Member.

Dr. Dushyant Singh Gaur professor and Head of Pathology Department at Himalayan Institute of Medical Science, Jolly Grant, Dehradun has joined WPSI as a life member. Though he is a medical doctor by profession but he is also a keen nature lover & Sketcher/painter, winning several awards since his school days. During his professional studies too, he won the first prize for painting every year as an extra-curricular interest. Due to time contrarians attached to his profession he indulged in photography. His fascination for Wildlife & Nature combined with passion for travelling to destinations all over the world has culminated in several exhibitions of his work. Immediately after taking up the life membership of WPSI, his extra ordinary photographs were displayed in an exhibition organized by WPSI during Wildlife week, (Oct. 1 to 9) 2011 in its office at Astley Hall, Dehradun, alongwith photographs of Dr. Prasant singh and Mr. Rajeev Mehta both life members and member Executive Committee and Vice President of WPSI respectively. Dr. Gaur has also contributed an article "The Scavengers" and has also written a report on wildlife conservation week celebration by WPSI during 3-9 October 2011 which appear in this issue of cheetal. WPSI will benefit immensely by his presence and active participation in its activities.

Some more Valuable members join the Society.

During the quarter under report following members joined the Society.

1. Mr. Vinod Rishi IFS(Rtd.) – Ex ADG (Wildlife) MOEF Govt. of India, Ex. Director IGNFA and Ex. Director Elephant project GOI. Mr. Rishi is a 1969 batch IFS officer of West Bengal Cadre now retired and settled in Dehradun. He has vast experience in Wildlife conservation and management and is a regular contributor of articles in Cheetal.
2. Dr. K.N .Singh IFS (Rtd.) – Ex. PCCF UP, has done his Doctorate on Wild Asian Elephants. He has been contributing useful articles to Cheetal
3. Mr. Indrajeet Singh, MD Tiger Paw, D383 Defence Colony, New Delhi – **Life Member**
4. Principal Govt. PG College Kotdwar, Garhwal – **Institutional Life Member.**
5. Raza Kazami , student, Wildlife and conservation issues, 54, Aditya Avenue, Airport Road Bhopal M.P- **Life Member**
6. Abhai Mishra, Scientist, IAC, DEAL Raipur road, Dehradun- **Life Member**
7. Sanjay, Scientist-D, IAC, DEAL Raipur road, Dehradun – **Life Member**
8. Arjun Balraj Mehta (Captain) B-72 Sector II, Dwarka, New Delhi – **Life Member**
9. Anil Kumar Sharma. Manager ACCTT, 58-Bhramanwala, PO Mazara, dehradun – **Annual Member**
10. Sardar Krushinagar Dantiwada Agricultural University, Chhatisgarh – **Institutional Annual Member**
11. Smt. Kamla Aggrawala Public School Hapur, Dist. Ghaziabad – **Institutional Annual Member**
12. Servants of Children Society Hapur, Distt. Ghaziabad- **Institutional Annual Member**
13. Amritash, 143 Kalidas Road, Dehradun – **Student Member**

Corpus Fund of WPSI started

Professor J.S.Bali, Life Member of WPSI suggested that a Corpus Fund of the Society should be instituted immediately and on his request the following member of Executive Committee of WPSI contributed to the Corpus Fund of WPSI in the meeting held on 28/8/2011

1. Professor. J.S. Bali	1000.00
2. A.S. Negi, President	5000.00
3. Mr. Rajeev Mehta, Ex. Vice President	1000.00
4. Dr. Prasant Singh, Member	1000.00
5. Mr. Pankaj Shah, Member	1000.00

All members are requested to contribute to the Corpus Fund of the Society to strengthen its financial position.

A Rare Winged Visitor Spotted off Kerala Coast

KOCHI: Swinhoe's storm-petrel, a bird species reportedly new to the Indian coast, was spotted in an oceanic bird expedition conducted off Chavakkad on Sunday.

A photograph of the "fully migrant" bird, along with that of a Wilson's storm-petrel, could be obtained during the survey 30 km off Chavakkad, ornithologists said.

The birds earlier reported to be found in the country had been those caught in strong oceanic winds and blown ashore, said P.O. Nameer, State level coordinator of the Indian Bird Conservation Network. Such wind-blown birds were reported from the Lakshadweep and Andaman Islands and Sri Lanka. This time, however, the sighting was over the interior sea along with other birds.

According to information available with the Birdlife International, occurrence status of the species in India is unknown. The species breeds on Verkhovsky Island, south of Vladivostok, Russia, and Japan. There are little-known populations in China, North Korea, and south Korea and records suggest breeding may possibly occur in the North Atlantic. In winter, it migrates south and west to the northern Indian ocean, according to documents.

Considering its very large range, the conservation status of the bird is evaluated as of least concern. Its population is believed to be stable in the absence of evidence of any decline or substantial threats.

The bird is slightly bigger than a mynah. this seabird can be found over pelagic and inshore waters. The birds are known to be breeding on oceanic islands. It feeds mainly on the wing by dipping and do not patter. Breeding starts in April, forming loose colonies on offshore islands in burrows, according to the Birdlife International.

"The bird stands out from the Wilson's storm-petrel with its notched tail and absence of white colour on its rump. The body of the bird is pale brown in colour. It was spotted alongwith two Wilson's storm petrels," J. Praveen, a member of the Survey team, said.

The survey also recorded more than 1,000 flesh-footed shearwaters. These birds follow fishing boats to feed on the by-catch thrown into the sea by fishermen. hence, most of the birds congregate near fishing boats for feeding on mackerels and sardines. They breed on the islets of southern oceans and migrate towards India to spend the summer in the warm tropical waters, experts said.

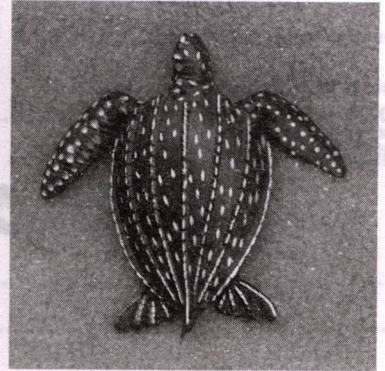
The common oceanic birds of the west coast namely sooty terns and bridled terns were photographed during the survey. Nearly 20 birds enthusiasts joined the sea expedition for the survey, held during the peak monsoon season. Earlier, oceanic surveys were held off the coasts of Kannur and Vadakara. Such exercises will be held in Kochi and Vizhinjam shortly. The survey was co-organised by the Indian Bird Conservation Network, the Cochin Natural History Society, and the Nature, Education Society of Thrissur.

Courtesy The Hindustan Times 4 August 2011

SNAPSHOTS

Protecting threatened leather back turtles

Endangered leatherback sea turtles migrate and forage across vast areas of the Pacific Ocean and Indo Pacific seas and require greater international efforts for their protection, says a study.



Bats use their neurons to home in on target



Using their neurons, bats can separate the cavalcade of echoes returning from their sonar pulses by distinguishing changes in amplitude between different parts of an echo to decide if the object is a target or just clutter.

Predictive breeding for more beneficial crops

Traditional breeding of crops involves crossing two varieties and selecting the best performing among the progeny. In predictive breeding, specific parts of the genome most likely to contain beneficial genes are identified.

The trigger for rapid collapse of ice shelves

Study of events that happened many thousands of years ago, creating mass discharges of icebergs into the North Atlantic Ocean, show that small amounts of subsurface warming can trigger a rapid collapse of ice shelves.

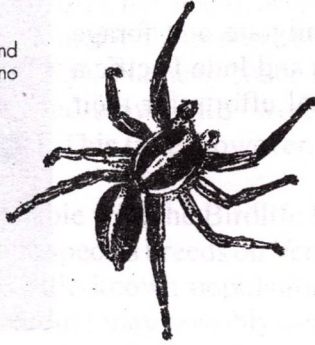
Courtesy The Hindustan Times 4 August 2011

Insects and Other Arthropods: What's Same, What's Different

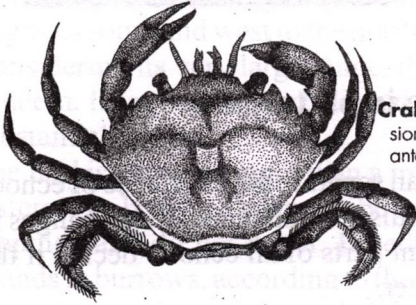
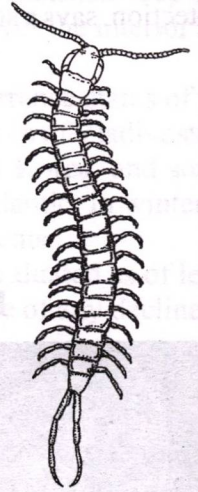
All arthropods, whether living on land or in water, have their bodies divided into segments. From these segments arise pairs of jointed appendages. In different cases, these appendages have developed into needle-like mouth parts, fangs, antennae, pincers, spinnerets and legs. We have seen that insects have three body divisions, three pairs of legs, single pair of antennae and wings.

Let us look at other arthropods.

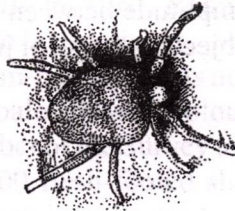
Spiders: Two body divisions (head and thorax combined). Four pairs of legs, no antennae, no wings.



Centipedes: Many segmented worm-like body, 100–200 legs arranged in single pairs (one pair of legs to each body segment).



Crabs and Lobsters: Two body divisions, many pairs of legs, two pairs of antennae.

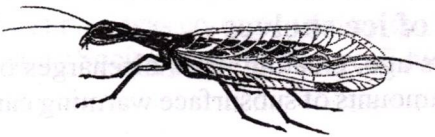


Ticks and Mites: Two body divisions, four pairs of legs, no antennae, no wings.

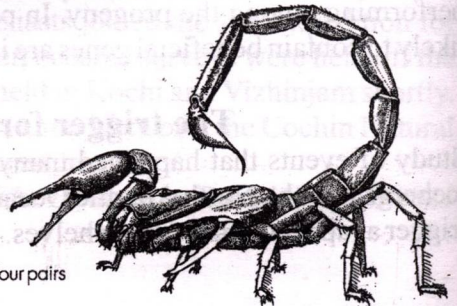
Millipedes: Many segmented worm-like body, a dozen to a hundred pairs of legs arranged in double pairs per segment.



Insects: Three body divisions, three pairs of legs, single pair of antennae, wings.



Scorpions: Two body divisions, four pairs of legs, no antennae, no wings.





Phone : 0135-2652410

THE WILDLIFE PRESERVATION SOCIETY OF INDIA

(Established 1958)

7, Astley Hall, Dehra Dun, U.A.

APPLICATION FORM

I
hereby apply to be admitted as a Patron / Life / Annual / Affiliated / Institutional / Student Member of the Wildlife Preservation Society of India.

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All Members get Cheetal (Quarterly) Journal FREE

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Govt. Depts., Corporations,
Societies, NGOs etc.) | Rs.500.00 per year |
| 7. Institutional Life | Rs.5000.00 |

All Communications may please be addressed to the Hony. Secretary.

Signature

Signature

The Wildlife Preservation Society of India

1. The aims and objects of the Society are as follows :-

- (a) To promote interest and impart knowledge regarding the preservation and conservation of all forms of wildlife, particularly among the youth of the country.
- (b) To cooperate with the Govt. of India and State Governments and with others Societies and Institutions having similar aims and objects in working for the interests of wildlife.
- (c) To assist in enforcing and actively supporting the Forests Acts. Wild Birds and animals Protections Acts and Rules etc. of State Governments and the Indian Arms Act and Rules in so far as they pertain to wildlife and to bring to the notice of the authorities any infringement of the same and to assist in the detention and prosecution of offenders in respect of such laws.
- (d) To advise and help the Govt. and wildlife administrators in the formation, maintenance and protection of Sanctuaries and National Parks, preservation of wildlife in general and endangered species of India in particular and in the introduction of exotic species into the country, rehabilitation of endangered species etc. and in the formulation and amendments of rules and acts, so as to conserve and increase wildlife stocks.
- (e) To raise funds for carrying out the above aims and objects and to found and maintain museums reading rooms and libraries of natural history in order to disseminate knowledge regarding wildlife.
- (f) To carry out publicity and propaganda for the preservation of wildlife in India by means of monographs, journals, films, filmstrips and other feasible methods.
- (g) To assist members of the Society in obtaining facilities for viewing and photographing wildlife in India.
- (h) To conduct research into the problem of Wildlife management in India, and in pursuance of this, to initiate, encourage and, where possible assist in the projects of the study of threatened species and related objects and to provide reference and research facilities for such work.
- (i) To carry on such other activities which will serve the above subjects.

2. What membership of Wildlife Preservation Society of India will entitle you to ?

- (1) You will become an active member of the growing group of Wildlife enthusiasts, who enjoy working for and spreading the knowledge of how to conserve India's heritage of wildlife for posterity.
- (2) You will be entitled to the full use of the library of the Wildlife Preservation Society and of its reading room.
- (3) You will receive a membership certificate.
- (4) You will receive a personal Identification and Membership Card.
- (5) You will be entitled to buy all publications of the Society at a concessional rate.
- (6) You will be entitled to buy at concessional rates the Societies Greeting Cards, Calendars, Tie, Label badges and the Balance of Nature Game (specially Published in colour for its educative and recreational values).
- (7) You will be supplied "Cheetal", the quarterly journal of the society free.

3. For membership particulars write to Honorary Secretary, Wildlife Preservation Society of India 7 Astley Hall, Dehra Dun.

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